

Expanding School Readiness Opportunities in the Rural South

The Upstart Rural TASK Force: Taking All to Success in Kindergarten

Waterford Institute

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A. Significance

This Education Innovation and Research Expansion Grant proposal forms the Upstart Rural TASK Force, a consortium of local education agencies (LEAs), state education agencies (SEAs), and nonprofit education leaders dedicated to Taking All to Success in Kindergarten. In Rural South TASK Force states (AL, AR, FL, GA, KY, LA, MD, MS, NC, NM, OK, SC, TN, TX, VA, WV), 67% of LEAs qualify as "rural" as defined in the Expansion grant notice, while more than half (51%) are "Rural, Remote; Rural, Distant; or Rural, Fringe" (details in "areas affected by project"). Pre-requisite inputs like transportation, qualified teacher workforce, and facilities are particularly expensive in distant and remote rural areas. As a result, high-quality center-based preschools in these states can be prohibitively expensive.

Furthermore, existing programs are both geographically and financially impractical for many rural families, especially when participating at their own expense even more unrealistic. Of the 341 U.S. counties identified in persistent poverty, over 80% were in the South and nearly 20% of all counties in the South were in persistent poverty. More than half (54.9%) of people who lived in persistent poverty were in the South region, outsizeing the South's 38% share of the U.S. population (Benson, Bishaw, and Glassman, 2023). The Waterford Upstart program offers an innovative capacity-building model for helping rural state educational agencies (SEAs), local education agencies (LEAs), and families overcome these barriers to early learning supports.

Supported by "strong" Randomized Controlled Trial evidence of efficacy, as well as What Works Clearinghouse (WWC) recommendations for early literacy and math instruction, the Upstart program has proven to cost-effectively scale in rural geographies, while driving sizable

significant gains in school readiness. By scaling this model across the expansive rural geography of the TASK Force states, this project serves a significant population of their most vulnerable, high needs, and difficult-to-support young learners, while expanding the range of early childhood learning options for rural school districts. The grant will expand Waterford's previous work in rural areas in partnership with the Department of Education (i3 and EIR 2018) to serve more racially diverse, rural communities in a broader geographical area of the country.

1. Severity of the Problem to be Addressed by Waterford Upstart

Waterford Institute is a nonprofit research organization, dedicated to solving the problem of social inequity through education. Significantly, research traces this inequity back to early childhood (Hart & Risley, 1995; Phillips, et al., 2017). Experts call the early childhood period between pre-kindergarten and third grade "the tipping point" (Atchison & Diffey, 2018)-the most opportune time to eradicate early achievement gaps. If children struggle to read at grade level at the end of third grade, they are four times more likely to drop out of high school; add poverty to this achievement gap and dropout rates multiply by 13 times (Atchison & Diffey, 2018). Furthermore, national reports show that our youngest learners-preschoolers and kindergarteners-experienced the largest pandemic learning losses (Amplify, 2021; Bielienski, Brown, & Wagner, 2020). Tragically, 2021 has seen unprecedented drops in preschool and kindergarten enrollment (Goldstein & Parlapiano, 2021; Weisenfeld, 2021).

Despite a 300% increase in state spending on pre-K since 2002 (Barnett, et al., 2017), more than 2.5 million 4-year-old children lack access to publicly funded preschool-and only half of children in rural areas have access to public or private "center-based preschools" (U.S. Department of Education, 2015). On measures of reading and math, "rural children lag about 2-3

points (or .20 of a standard deviation (SD)) behind children living in small urban and suburban areas" (Miller & Votruba-Drzal, 2013, p. 240).

This access gap is especially devastating for rural children who are among the most underserved and difficult to serve populations. This is compounded for youth of color-while minority groups make up a smaller share of the overall rural population compared with urban areas, the groups are often highly concentrated in persistent poverty clusters. For example, in the 153 rural persistent poverty counties located in the southeastern Coastal Plains stretching from North Carolina to Louisiana and Arkansas, Blacks make up 43.3% of the population (Dobis, Krumel, Cromatris, et. al, 2021).

2. National Significance of the Waterford Upstart Project

The Upstart Rural **TASK** Force seeks to leverage innovation with evidence to both overcome barriers to rural student achievement and develop sustainable models for scaling across rural communities nationwide. With 30% of American students living in remote towns and rural areas, the scarcity of early childhood supports in these locales attacks the very foundation of our national progress and achievements (National Center for Education Statistics [NCES], 2013). Nobel Laureate James Heckman's groundbreaking study, "The Lifecycle Benefits of an Influential Early Childhood Program," found that high quality birth-to-five programs for disadvantaged children can deliver a 13.7% per child, per year return on investment. Long-term outcomes for children include reduced crime, reduced special education costs, higher educational attainment, and healthier lives, while mothers gain more education, work experience, and higher wages (Garcia, Heckman, Leaf, & Prados, 2017). These varied gains are essential to eroding intergenerational and community poverty and achieving equity.

The TASK Force scales a proven logic model (Appendix G) that leverages Upstart's innovative blend of adaptive, personalized early learning software within a developmentally appropriate usage model that helps families learn to monitor family screen time and use technology for educational, prosocial purposes. Upstart builds capacity for parental engagement with parent training and ongoing, personalized coaching offered remotely and in-person in participants' districts and communities.

B. Strategy to Scale

The Waterford Upstart program attacks the rural achievement gap, offering a cost-effective, scalable early childhood intervention, proven by randomized controlled trial studies to drive significant and positive gains in school readiness for young children in the year before kindergarten (Overby & Hobbs, 2016; Overby, Hobbs, & Thomas, 2017; Shamir, Miner, Izzo, Feehan, Yoder, & Pocklington, 2018). As such, this proposal meets Absolute Priority 1 with Strong Evidence and Absolute Priority 2 for Field-Initiated Innovations.

1. Upstart Overview

Our proposed Upstart Rural TASK Force implementation is modeled after our successful rural Utah i3 Validation Grant (2013, PR/Award #U411B130020) and Upstart Great Plains TASK Force EIR Expansion Grant (2018, PR/Award #U411A18000) where we successfully built community-based partnerships to scale Upstart statewide by increasing service to Utah's 18 most rural districts (i3) and Idaho, Montana, Wyoming, South Dakota, and North Dakota's most rural areas (EIR).

Key program elements include:

- **Recruitment:** Waterford works with SEAs, LEAs, and community partners to actively identify and recruit program participants ages 3-8.
- **Educational technology:** Computers (laptops and tablets) and internet access are provided to families with financial need, free of charge. As a participation incentive, families get to keep the laptop or tablet if they meet program participation requirements.
- **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](#).
- **Training:** Face-to-face trainings for parents, caregivers, and educators are provided (in English or Spanish) to develop program understanding, buy-in, and ongoing collaboration and engagement.
- **Family/educator engagement:** Waterford coaches and professional learning consultants monitor children's program usage and provide reports, motivation, and coaching for families, caregivers, and educators, using a mix of live and technology-mediated strategies.
- **Assessment:** Waterford administers a pre- and post-assessment, as well as ongoing formative assessment to document growth and optimize implementation.
- **Reports:** Waterford reports results to stakeholders.
- **Evaluation:** Waterford works with external evaluators to support their work, emphasizing rigorous assessment standards to measure a variety of outcomes.

More specifically, the Upstart program uses two evidence-based software programs developed by the Waterford Institute:

- **Waterford Early Learning** - 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 Young Learner Assessment (AYLA)**- this adaptive, computer-administered assessment gives an accurate indication of each child's reading and math readiness and competence. A hallmark of the software is its easily understood reports, which receive high marks from parents (see parental satisfaction scores in Appendix G).

Absolute Priority I-Strong Evidence

Six years of independent evaluation show Upstart significantly increases literacy skills for preschool-age children, especially among at-risk populations (Evaluation and Training Institute [ETI], 2011; ETI, 2012; ETI, 2013; ETI, 2014; ETI, 2015; ETI, 2016; ETI, 2017; ETI, 2018a and b; ETI, 2019a and b, ETI 2020a and b). These research findings are confirmed in independent, rigorous Randomized Controlled Trial studies that meets "strong" evidence requirements, conducted for the Investing in Innovation (i3) Validation Grant (2013, PR/Award# U411B130020) and Upstart Great Plains TASK Force EIR Expansion Grant (2018, PR/Award #U411A18000). In this i3 Validation Grant study, children from 13 rural Utah districts (N=497) were assigned randomly to either the Upstart reading software (treatment) or Waterford's math/science software (control).

i3 Validation. This study proves that when used with fidelity, Upstart has a substantial impact on improving student growth and closing achievement gaps for rural 4-year-old learners.

Using Cohen's d (Cohen, 1969) to estimate the impact of the program on two standardized literacy measures, the Brigance Inventory of Early Development III (IED III) and the Preschool Early Literacy Indicator (PELI), positive effects were found when comparing literacy outcomes between treatment and control students. Treatment students outperformed controls as measured by the IED III Literacy composite scale ($d = .42$, $p < .001$) and the PELI composite scale ($d = .26$, $p < .001$) (Overby & Hobbs, 2016). As a point of context, "for the WWC, effect sizes of .25 standard deviations or larger are considered to be substantively important" (What Works Clearinghouse, 2017, p. 14).

EIR 2018 Validation. ETI is finalizing a multi-year RCT of the Waterford Upstart program in Idaho, Montana, North Dakota, South Dakota, and Wyoming, for the 2019-2020 (Cohort 1), 2020-2021 (Cohort 2), and 2021-2022 (Cohort 3) school years; when available, 2022-2023 cohort and comprehensive data will be shared in the EIR 2018 report to the US Department of Education. Children assigned to the treatment group used the EarlyReading software, and children assigned to the control group used the Early Math/Science software. Results from the first two years of the study are noted below:

- In Cohort 1, the treatment group consisted of 134 students, and the control group consisted of 145 students. Preliminary results for Cohort 1 showed that "Upstart had a strong impact on children's emerging literacy and math skills... Treatment children [enrolled in Reading] outperformed Control children on the literacy subscales of the KTEA, measuring Letter-Word Recognition ($ES = .56$), Reading Comprehension ($ES = .32$), and Phonological Processing ($ES = .43$). Similarly, Control children (enrolled in

Math/Science) outperformed their treatment counterparts on the KTEA subscale of math concepts and applications (ES = .55)."

- In Cohort 2, the treatment group consisted of 319 students and the control group consisted of 332 students. Preliminary results for Cohort 2 showed that "Upstart had a strong impact on children's emerging literacy and math skills... Treatment children (enrolled in Reading) outperformed Control children on the literacy subscales of the KTEA, measuring Letter-Word Recognition (ES = .39), Reading Comprehension (ES = .33), and Phonological Processing (ES = .38). Similarly, Control children (enrolled in Math/Science) outperformed their treatment counterparts on the KTEA subscale of math concepts and applications (ES = .33)."
- In Cohort 3, the treatment group consisted of 168 students and the control group consisted of 184 students. Preliminary results for Cohort 3 showed that "Upstart had a significant impact on the subscales of early literacy and a single measure of early math skills... treatment children (enrolled in **UPSTART** reading) outperformed control children on the literacy subscales of the KTEA, measuring Letter-Word Recognition (ES = .31), Reading Comprehension (ES = .27), and Phonological Processing (ES = .42). Similarly, control children (enrolled in UPSTART math) outperformed their treatment counterparts on the KTEA subscale of math concepts and applications (ES = .41)."

Clark County RCT. A two-year RCT (2019-2021) of Waterford Upstart focused on Clark County, Nevada evaluated the effect of Upstart with urban and dual-language learning populations (Hobbs & Coordt, 2021). Two cohorts of pre-kindergarteners were tested before and after they were enrolled in Upstart during the 2019-2020 (Cohort 1) and 2020-2021 (Cohort 2)

program years. The 550 measured were randomly selected from a two-year total program group of 1,367. There were significant differences in children's mean scores on measures of reading comprehension [(ES=0.44)], letter and word recognition [(ES=0.42)], and phonological processing [(ES=0.26)]. There were significant differences on measures of math concepts when comparing those who participated in Upstart Math with those in the Reading group [(ES=0.44)].

The consistency of the strong evidence, combined with the other independent studies, can be attributed to the Upstart program's pedagogical alignment with and implementation of recommendations from the WWC Practice Guide, *Foundational Skills to Support Reading for Understanding in Kindergarten through 3rd Grade* (Foorman, et al., 2016). Two of the four recommendations in this Practice Guide are characterized as having "strong" evidence, including Recommendations 2 and 3, and math aligns with the Teaching Math to Young Learners standards. Upstart adheres closely to these recommendations.

Recommendation 2: Develop awareness of the segments of sounds in speech and how they link to letters (phonological awareness). Upstart software helps children develop an awareness of the individual sounds in speech and in words. The WWC Practice Guide explicitly confirms the findings of the National Reading Panel for phonological awareness, which included six studies showing positive effect in pre-K students for phonological awareness (National Institute of Child Health and Human Development, 2000). Both research analyses utilized similar criteria in selecting high-quality rigorous studies, concluding that this phonological awareness instruction should occur as early as possible and is a critical component of effective early literacy interventions. Waterford's approach exactly aligns with this strong evidence-based recommendation.

Recommendation 3: Teach students to decode words, analyze word parts, and write and recognize words (phonics). Upstart's adaptive literacy and math software, Waterford Early Learning, includes a comprehensive phonics curriculum for young children that systematically builds students' skills from no reading to confident reading at 90 words per minute. Students develop letter recognition automaticity as they learn the alphabet song and the name, sound, shape, and formation of each upper and lowercase letter. Waterford's multimedia instruction is explicit and direct, so that learners hear online readers model how to use phonics to decode unfamiliar words. More specifically, the program teaches word attack skills such as mastery of letter sound correspondence, blending, pattern words, sight words, and key words.

Teaching Math to Young Learners recommendation. Upstart's adaptive literacy and math software, Waterford Early Learning, includes a comprehensive math and science curriculum for young children that systematically builds students' skills in five instructional areas: number and cardinality, operations and algebraic thinking, measurement and data, geometry, and science. Students develop understanding of quantities and number recognition as they explore new ideas around geometry, earth science, living science, and math operations. Just as in the reading content, Waterford's multimedia instruction is explicit and direct, so that learners can find success building foundational math and science skills. Students are also encouraged to learn about the scientific method, to ask questions, and to think about the world around them. Non-fiction stories about a variety of content areas increase students background knowledge and overall understanding expanding their vocabulary.

Absolute Priority 2-Field-Initiated Innovations-General

Upstart is a field-initiated innovation that overcomes the most difficult preschool access barriers for rural, underserved populations. Education technology leaders Clayton Christensen

and Michael Horn describe how pockets of "nonconsumption"-like the preschool access gap-are ideal for disruptive innovations (Christensen & Horn, 2008) like Upstart, which serves rural children who have very limited access to traditional pre-K supports.

Researchers who have attempted to decompose income-related gaps in cognitive school readiness have found that parenting style and home learning environment account for over 40% of the income-related learning gaps (Waldfogel & Washbrook, 2011). Waterford Upstart is unique in the field, with an innovative blend of "tech-assisted but human powered strategies" and researched-based curricula targeting these most consequential factors in the young child's most proximal environment-the home-improving the teaching behaviors of primary caregivers and developing foundational academic and cognitive skills.

2. Specific Strategies To Overcome Barriers to Scale

As the early childhood experts at the Brookings Institute emphasize, "the challenges of scale-up are illustrated by the national Head Start program, for which consistently strong and enduring impacts have been elusive" (Phillips, et al., 2017, p. 20). NIEER also captures the difficulty of scaling quality programs. In 2022, six pre-K programs in five states met all 10 of NIEER's quality standards benchmarks, while "some of the programs that still meet few quality standards benchmarks are those serving large numbers of children (e.g., California **TK** [Transitional Kindergarten], Florida, and Texas)" (Friedman-Krauss, et al., 2022, p. 8). The Upstart 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. Because it can be implemented in a continuum of setting (fully home, fully school, or a hybrid) and develops parents' or primary caregiver's skills

as the child's first teacher, there is no need to find (additional) classroom space, build a site, purchase new curriculum, hire a qualified staff, or find transportation resources, enabling it to hurdle the most difficult and common access barriers to site-based preschool programs in rural areas.

Cost. For the Great Plains TASK expansion and beyond, Upstart is only \$2,100 per child (vs. \$5,000 for center-based pre-programs (Friedman-Krauss, et al., 2022) to \$13,468 for Head Start programs (Friedman-Krauss, 2022, p. 38.), and only \$1,100 if the family already has internet and a device. As the Upstart program scales nationally, the cost drops. Our proposed configurable program model (below, "Priorities") offers stellar economies of scale. **It is not intended to replace or threaten any site-based programs, but rather, to provide affordable, scalable options for developing school readiness in rural populations that are unserved or underserved by existing services.**

Transportation. The Upstart model is based in the home or at an existing school setting, eliminating transportation barriers. Periodically, the Waterford coach or professional learning consultant will conduct social learning activities for participating families, but they can be arranged to minimize the transportation burden.

Performance fidelity. Upstart leverages technology's innate ability to scale, cope, and perform with fidelity under an increased workload. Thanks to the i3 Validation Grant, Waterford has also expanded and refined its parent support program specifically for rural parents, based on parent feedback and program evaluations.

Parental preferences. There is no requirement in any state to send a 4-year-old to a pre-K program. A home-based option can be implemented to optimize family learning routines without disrupting family life with rigid schedules, commutes, or the expense of transportation,

making it an outstanding introduction to the many benefits of early education that will become readily apparent once children enter school.

Priorities. As addressed above, one of the most pervasive barriers to scale is a lack of understanding around the importance of early childhood education that causes families, schools, districts, and states to overlook its importance. Waterford has worked to scale Upstart statewide in Utah and secure state funding that prioritizes rural children. Similarly, we have successfully worked with families, LEAs, community-based organizations, SEAs, and state government decision makers to achieve sustainable state funding streams for Upstart in Indiana, Nevada, North Dakota, New Mexico, Ohio, and South Carolina as well (based on successful pilot models). These achievements were recently recognized by the National Conference of State Legislatures (NCSL) in their new white paper, *A Fair Start: Ensuring all Students Are Ready to Learn* (Weyer, 2018).

In alignment with Waterford's commitment to inclusive excellence and community responsiveness (below), this expansion will offer Upstart in a configurable model. In the 2018 EIR expansion, Upstart was focused on 100 percent home delivery. According to the configurable model, students may participate in the program in three other ways: fully home-delivered and supported, home-delivered with additional school or other site supports; school- or site-delivered with additional home supports; and fully school- or site-delivered and supported. All models utilize the same proven Waterford Early Learning software and assessments; differentiated school / site and family engagement characterize the configurable model. Details on evaluating effectiveness and study design are addressed in Section D.

3. Upstart Dissemination Across Rural America and its Utility

Our i3 Validation Grant and 2018 EIR Expansion Grant both included a robust dissemination plans, based on the following model which has proven to be very successful: : 1) Research information; 2) Responsive communities; 3) Policy information; 4) Pilot expansions; 5) Partnerships and 6) Commitment to equity and inclusion. The innovation, impact, and cost-effectiveness of the Upstart model is gaining national recognition and momentum, particularly as it drives impact in rural locales, as featured in [Forbes](#) (Dolan, 2016), [Huffington Post](#) (VanderArk, 2015), [USA Today](#) (Wiltz, 2015), [The 74](#) (Phenicie, 2017), and [Hechinger Report](#) (Mader, 2017).

Research information. As we have done with our i3 Validation Grant and 2018 EIR Expansion Grant research results, we will regularly present outcomes to professional organizations, like the American Education Research Association, the National Rural Education Association, the National Association of Elementary School Principals, the REL-NEI Northeast Rural Districts Research Alliance Research Symposium, and American Educational Research Association, KES-SEEL, EDULEARN, to name only five, as well as other members of EIR cohorts. We have found that one presentation usually spawns additional invitations.

Responsive Communities. Waterford's marketing and public relations team has already identified salient features of an outreach campaign, including messaging and positioning categories, audiences, and key and supporting messages. To augment its small team, Waterford has contracted with outside firms to provide media services that include press releases, events, campaign development, and coverage (pitching and placement), including Tier 1 broadcast and print media. These resources are already in place, ready to support the Upstart Rural South TASK Force project. We have also had great success with video profiles of our Upstart

implementations shared through social media. Waterford Upstart videos of how [Head Start](#) is utilizing our software have a reach of over 19,000 impressions on our YouTube channel. This year, we interviewed several rural families (testimonials [2](#) and [1](#)), totaling over 27,000 combined views. Our community engagement on social media has yielded over 10,000 followers on Instagram, 27,000 likes on TikTok, and 30,000 Facebook followers. Waterford has also successfully used local events such as fairs and festivals for recruitment, relying on Liaisons to interface with their neighbors to raise the profile of the Upstart program and the importance of early education.

Policy information. Our dissemination plan to promote ongoing implementation and growth after the EIR grant also includes working with those that influence state policy, such as legislators and their staff. We have found it important to share program information that answers questions critical to decision makers, including: How does Upstart work? Why does it work? How much does it cost? Where is it best implemented? What is the relationship between the program and state departments of education? How is the program assessed?

We work with legislators in Utah, Idaho, Ohio, South Carolina, Indiana, Mississippi, North Carolina, South Carolina, California, Delaware, Wisconsin, Wyoming, New Mexico, and Nevada to answer these questions. Our recent success in securing state funding for Waterford Upstart for rural students in South Carolina and Indiana, as highlighted by the NCSL State Policy and Research for Early Education Working Group (SPREE), offers compelling options for decision makers seeking to overcome difficult barriers to early childhood education in their states (Weyer, 2018). More specifically, our work was highlighted in connection with messages describing the importance of parent choice, outcomes, and reaching underserved, rural populations in a cost-effective way.

Pilot expansions. Replication across 50 states and DC (inclusive of school year and summer programs) has produced excellent results with high fidelity implementations that consistently exceed usage targets, growth goals, and participant satisfaction. Since launching the EIR Expansion Grant, Waterford has grown from just three publicly funded state implementations in school year (SY) SY2018/19 to 12 in SY2022/23, all showing positive impact on school readiness. In effect, the TASK Force follows and expands this pilot model using EIR funds to also greatly enhance program assessment, which will add significantly to the research literature in the field as well as data for state-level decision makers.

Partnerships. One of the important lessons we learned in our i3 Validation Grant and 2018 EIR Expansion Grant is the importance of establishing community-based partners to support each implementation. District Liaisons led these partnership development effort and proved invaluable to our success in finding and recruiting participants, as well as connecting Upstart families with enriching community resources and support. Details of our implementation partners are discussed in Section C. Within this work, we also are able to collaborate and network with national early childhood education leaders and thought partners.

National Advisory Committee on Inclusive Practices (NACIP): [REDACTED], National Civil Rights Museum; [REDACTED], National Urban League; [REDACTED], LULAC (League of United Latin American Citizens); [REDACTED], Indigenous Economic Wellbeing Alliance; [REDACTED], The Education Trust; [REDACTED], Cleveland Guardians; [REDACTED], Indigenous Health and Wellness Connections; [REDACTED], Family Equality Council; [REDACTED], Utah Pacific Islander Health Coalition; [REDACTED], TNTP; [REDACTED], NAACP National Office; and [REDACTED], Jardin Education Group.

National Early Learning Advisory Council (NELAC): [REDACTED], National Head Start Association; [REDACTED], PhD, University of Miami; [REDACTED], PhD, Gates Ventures; [REDACTED] Ph.D., Alliance for the 7th Generation; [REDACTED], Ph.D., media literacy education expert; [REDACTED], University of Maryland; and [REDACTED], Texas Reading Academies.

Commitment to equity and inclusion. Waterford's commitment to inclusive excellence is foundational to achieving our mission of universal literacy. It is fundamental expansion. Waterford.org is a mission-driven organization, and diversity, equity, and inclusion (DEi) are at the heart of who we are and what we do. These values inform our decision making, talent recruitment, program development, and engagement with the children, families, and communities we serve. NACIP, an esteemed group of national education equity thought leaders, serves as an advisory and consultive body to Waterford leadership to support the development of strategies and programs that respond to the social and cultural needs of the families and communities Waterford aims to serve.

At Waterford, we define Inclusive Excellence as: the result of the cohesive, coherent and collaborative integration of diversity, inclusion and equity into our organizational pursuit of excellence. We recognize that our success is dependent on, and tied directly to, how well we value, engage and embed culturally responsive practices and inclusive intelligence into our operational strategies. When designing curriculum, engaging with families, collaborating with partners, or recruiting new talent, Waterford seeks out and makes space for diverse voices and perspectives. Waterford's advocacy for universal access to early learning, as addressed earlier in this section, is rooted in our steadfast commitment to these values and our mission to deliver excellence and education equity for all learners.

From a curriculum perspective, we assess our content, resources, and support through the lens of the Cultural Proficiency Continuum. When children see themselves and their communities reflected in the texts they read, their engagement and academic outcomes improve. When we refresh or build new content, we ensure that our books and stories showcase an array of cultural experiences and voices. We use a rubric to assess representation in all of our texts, activities, illustrations, voiceovers, and supporting content, and our Family Coaches provide differentiated coaching to effectively engage in their child's early learning.

C. Quality of the Project Design and Management Plan

The proposed Upstart Rural TASK Force project builds from a structure of four core goals which support improvement in school readiness and early childhood education services for underserved rural children, communities, and regions across the nation. This structure has evolved from the successful implementations of Waterford's i3 Validation Grant and 2018 EIR Expansion Grant. Clearly specified goals and objectives are supported by specific activities and performance measures (in all instances, completing stated tasks on time), driving timing and accountability (Project Management Plan, Attachment 3). Resumes for project personnel are included in Appendix B.

Project partners. The AASA will be a primary partner in this project, as we extend our existing partnership in the AASA Early Learning Cohort to offer an AASA Early Learning Rural Cohort, specifically supporting rural superintendents from our TASK Force states. Nearly 70% of AASA superintendents lead rural districts. This Early Learning Rural Cohort adds significant depth and dimension to our dissemination and scaling plan, as it helps to develop knowledgeable rural school leaders and a larger supportive professional community of colleagues who understand the importance of early childhood education. These elements contribute to greater

ownership in our project goals, as well stronger commitments to sustaining the program beyond the duration of the grant. Partners for Rural Impact, Mississippi Early Learning Alliance (MELA), and the Mississippi Head Start Association will also support the grant, offering expertise in rural education and rural communities, as well as presentation and reporting forums for sharing project results (Letters of Support are located in Appendix C).

Furthermore, 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 Upstart expansion into rural areas in southern states, ultimately improving educational outcomes for children in these communities. Starting with Jackson State University and Alcorn State University as lead partners, Waterford will recruit two to four additional HBCU representatives to serve on the TASK Force.

As Waterford expands the proven TASK Force model through this grant, we are actively seeking to expand the engagement with SEA, LEA, and IHE representatives from the sixteen South TASK Force states as members. As we have experienced in our i3 Validation Grant and 2018 EIR Expansion Grant pilots, the project will then grow through grassroots means, defined dissemination of project results, and outreach to stakeholders and decision makers. We expect TASK Force support and participation to significantly grow with news of an official grant award.

Feedback and Improvement. In consultation with SEAs, LEAs, IHEs, education advocacy organizations, and Waterford staff, opportunities for feedback are built into the multi-year management plan for the grant and will be revisited on an annual basis. The types of data to be included 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.

Sustainability. Founded in 1976, the Waterford Institute has a long history of financial stability and success. As we learned with our i3 Validation Grant and 2018 EIR Expansion Grant, costs drop with scale: the cost per participant for the most intensive configuration is on track to fall from \$2,000 in 2019-2020 to \$1,307 by 2024-2025. In Utah, scaled pricing is \$1,028 per student for the configurable program the state selected to implement.

D. Quality of Project Evaluation - Prepared by American Institutes for Research

1. Evaluation Methods to Meet WWC Evidence Standards Without Reservations

AIR will independently evaluate the Upstart configurable model as delivered using the scaling strategy in 100 schools and 100 Pre-K programs across 4 US regions (Attachment 2). According to the configurable model, students may participate in the program in three ways: home-delivered with additional school or other site supports; school- or site-delivered with additional home supports; and fully school- or site-delivered and supported. All models use the same proven Waterford Early Learning software and assessments but are differentiated school/site and family engagement characterize the configurable model.

The AIR team brings deep knowledge and experience in designing and conducting large-scale rigorous evaluations that meet WWC Standards without reservations. The impact

evaluation will examine the math and reading achievement of students in Pre-K-3 using math and reading assessments administered by the research team and state-standardized math and ELA tests when available. In addition to the impact evaluation, AIR will establish a continuous improvement feedback loop for Waterford focused on barriers and successful supports for scaling Upstart using implementation data gathered by the evaluation team (See Attachment 3.5 for implementation data details) and completed fidelity checklists from the program.

The following research questions (RQs) will help identify for whom Upstart works and under what conditions:

1. What is the impact of Upstart on students' reading and math achievement?
2. Is the impact of Upstart on reading and math outcomes moderated by student, classroom, and site characteristics?
3. Through what mediating pathways does Upstart achieve its impacts on student academic achievement?
4. Are the scaling strategy and Upstart implemented with fidelity?
5. What are the obstacles and success factors to the scaling and ability to sustain Upstart?
6. What is the cost-effectiveness of scaling Upstart?

Design. These six RQs will be addressed through two blocked randomized controlled trial (RCT) designs. The first RCT will examine the impact of the Upstart program in 100 Pre-K programs. Pre-K programs will be randomly assigned within blocks (i.e., school districts) to implement Upstart reading or Upstart math. The second RCT will examine the impact of Upstart program in elementary schools in grades K through 3. Schools will be randomly assigned within school districts to implement Upstart reading or Upstart math. The Upstart math group will be

the control group for the analysis of the impact of Upstart reading and vice versa. This design has been successfully implemented in earlier Upstart evaluations (e.g., Hobbs and Overby, 2017) and others (e.g., Watt & Therrien, 2016) and will allow AIR to separately estimate the impact of each of these Upstart interventions on reading and math outcomes, respectively.

Sites are the appropriate unit of assignment because it allows examination of programs longitudinal impact in elementary schools since students will be exposed to same treatment condition when they advance from kindergarten to third grade. This design also deters contamination that may arise from collaborative planning activities that are commonly used within elementary schools. Blocking sites within each school district will ensure that the treatment sites within each district will be equivalent on observed and unobserved district level characteristics such as the demographic distribution of children and their socioeconomic status. Blocking by district will remove the variance in the outcome due to differences between districts and, thereby, improve the precision of impact estimates.

To lessen the data collection burden, AIR will collect data from pre-K and K students in separate years (See Attachment 3 for the timeline of evaluation activities). AIR research team will study the impact of the program for prekindergarten students for one cohort of students who will start prekindergarten in the 2025-26 school year (SY). To examine the impact of the program for K-3 students, AIR will implement two strategies. The research team will follow a cohort of students who will start kindergarten in 2024-2025 SY until end of third grade in 2027-28 SY. AIR will also examine the impact of Upstart cross-sectionally for students in grade K, 1, 2, and 3 in the 2024-25 school year.

Outcomes. The evaluation will examine student outcomes using validated and reliable measures that are directly related to the intended program outcomes and meet the WWC's

validity and reliability requirements (WWC, 2020). According to the theory of change presented in the logic model (see Appendix G), the primary student outcomes are reading and math achievement. Attachment 3.5 offers more information on proposed outcome measures including psychometric properties and timing of data collection.

Student Outcomes: The primary measure of reading and math achievement will be the Kaufman Test of Educational Achievement-3rd Edition (Kaufman & Kaufman, 2014), which includes a range of subtests across language, literacy, and math domains for use with children ages 4 and older. Baseline measures for these assessments will be collected in the fall of 2025-26 SY for Pre-K programs and in the fall of 2024-25 for kindergarten students. Outcome data from the same assessments for the impact analysis will be collected in the spring of 2025-26 SY for Pre-K students and spring of 2024-25 for kindergarten students. To make collecting data with these one-to-one assessments in a timely manner feasible, the AIR team will randomly select 12 Pre-K and K students from each classroom across treatment condition in each school/program to administer the assessment to.

End of school year **ELA and math achievement** scores on state assessments (Grade 3) and district diagnostic assessments for K-3 students (e.g., !Ready) will also be used for summative evaluation. Data from these assessments will be gathered from school districts in the 2024-25 SY, the first year of Upstart implementation for all K-3 students in the participating schools. Data for the cohort of K students who started school in the 2024-25 school year will continue to be gathered from the school district to evaluate the cumulative impact of Upstart in grades K through 3. If available, the prior year scores for these assessments will be used as baseline measures (See Appendix **J.I** for data dissemination plans).

Sample and Statistical Power. AIR conducted power analyses to determine the sample size needed for the project evaluation to detect the main impacts of the *Upstart* program on student outcomes with adequate precision. The research team estimated power for a constant effect blocked cluster random assignment design with the impact on person-level outcomes (Level 1) and treatment occurring at Level 2 and relied on prior studies of the same and similar interventions to establish effect size benchmarks for student outcomes and key design parameters (e.g., Intraclass correlations [ICC], percent of variances explained by covariates at each level).

The sample for the proposed RCTs will include 100 Pre-K programs and 100 schools. This sample translates into an estimated minimum detectable effect size (MDES) of 0.191 for reading and math achievement outcomes for researcher-administered assessments. The analyses using state standardized and district diagnostic tests will provide an MDES of 0.178. The analysis for cumulative impact of Upstart will yield an MDES of 0.182 to 0.199 depending on the grade. The power calculations assume an attrition rate of 5% at the site level for each school year with 20% by the end of Year 4 of implementation. See Attachment 3.3 for assumptions and impact of potential attrition levels for these power calculations.

Strategies for Addressing Attrition. The main threat to internal validity is potential selection bias resulting from sample attrition during the intervention. The lack of a no-service control group in the study design (which provides either a math or a reading intervention) reduces the chances of differential attrition. AIR also plans to use several additional strategies to minimize overall attrition. First, during recruitment, AIR and program personnel will clearly communicate the data collection requirements and the importance of retention to potential participants and will advertise that only schools that are committed to staying in the

study during the two intervention years should volunteer. Second, AIR will regularly communicate with the sites to identify any potential issues that may lead to attrition and develop solutions to keep sites engaged with the program. Given that the proposed evaluation is based on an RCT that is free of confounding factors and is expected to demonstrate baseline equivalence with low attrition, it is expected to produce strong evidence on Upstart's effectiveness at scale that will meet the WWC evidence standards without reservations.

Impact Analysis. AIR's main impact analyses will be fixed-effects intent-to-treat analyses that estimate the impact of Upstart on students in the study schools. The basic strategy for the impact analysis is to estimate the difference in outcomes between the reading and math research groups, adjusting for the blocking used in random assignment and for student- and school-level covariates. The study will use 2-level hierarchical linear modeling to estimate the treatment effect on the student-level outcomes of interest, where students are Level 1 and schools are the Level 2 unit. The impact models will incorporate fixed effects for randomization blocks and as appropriate, covariates at the student- and site-level that are expected to be correlated with the outcomes.

Inclusion of covariates will improve the precision of the impact estimates and guard against any bias due to imbalance in baseline covariates that arises due to random chance. AIR will adapt the main student impact model to assess the differential impact of Upstart on different groups of students (RQ2) by incorporating treatment-by-moderator interaction terms, where the moderator is a characteristic of the student, classroom, or site (see Attachment 3.6). To assess the extent to which the impact of Upstart on student outcomes is mediated by parent or teacher engagement (RQ3), AIR will use a single-mediator model that estimates the overall

mediating effect of parent or teacher engagement, as measured mainly by frequency engagement through parent and teacher surveys, and how often they accessed professional services. For more detail on AIR's analysis plan please see Attachment 3.6.

Implementation Analysis. To assess the fidelity of implementation of the Upstart program by families and schools (RQs 4 & 5), the evaluation team will use a mix of quantitative and qualitative data that align with the key components and inputs/activities in the logic model (e.g., program usage, provision of technology, supports for caregivers and educators; Appendix G). The main quantitative data source for implementation will be the raw, child-level data obtained from the educator/parent database that Waterford maintains as part of its operation of the program. These data include metrics on child usage of the digital learning platform (i.e., time spent, progress tracking, etc.). Individual child-level reports are available in the database and include measures of weekly usage and progress indicators along the Waterford Early Learning curriculum. These data will provide evidence for dosage and if the program is being accessed and used as intended.

Based on previous studies of Upstart that have found positive effects of the program for students who completed 1100 or more usage minutes, AIR will compare outcomes for students who accessed the program for 1100 minutes or more with outcomes for those who had fewer than 1100 minutes. AIR will also retrieve data from the Waterford team on the frequency with which parents and teachers use the Waterford professional services supports that are offered, including their attendance at the orientation, trainings, and other virtual events and their use of follow-up coaching services, that are intended to help them implement the program.

In addition to quantitative data obtained from Waterford partners, the evaluation team will also collect information directly from parents and educators to determine how the configurable model is being implemented and if it is happening with fidelity, and what obstacles and successes may be present. AIR will do an online survey with both caregivers and educators in the PreK and K cohorts in the spring to assess a) their reports of frequency of usage (i.e., days/week, time spent, etc.), b) their own experience with the platform, and c) feedback on their child's experience with the platform (we will also conduct surveys for the K cohort educators and caregivers in Year 5, when children are in 3rd grade; see Attachment J.2 for the timeline of implementation evaluation activities).

AIR will also conduct a series of 15-20 Zoom interviews (across the school year) with a random sample of teachers and parents to gather in-depth information about their experiences implementing the different options of the configurable model of the Waterford curriculum. AIR will ask participants about their experiences with a) the training and ongoing supports they received, b) their perspectives on the ease of use of the configurable model of the program, particularly as it relates to how parents and educators communicated and collaborated to implement the model in home and school settings, respectively, and, c) suggestions for improvement to help facilitate implementation and scale-up.

The evaluation team will use descriptive statistics (frequencies, means, and standard deviations) to analyze these data from child usage reports and parents' and teachers' responses to survey and interview questions. AIR will also use qualitative analytic procedures to analyze interview data to identify common experiences and strategies across schools that may improve the implementation, sustainability, and scaling of the program. These data will be used to share formative feedback with Waterford for purposes of continuous improvement

on a yearly basis (Y2-Y4). The analysis will provide evidence of the extent to which expected program activities are implemented at the individual and classroom/school levels and help understand variations in implementation across schools. (See Attachment 3.4 for a description of the different types of implementation data.

Cost Analysis. To provide information about whether the Waterford configurable model is a cost-effective investment (RQ 6), AIR will conduct a cost analysis using the Resource Cost Model (RCM), which has been used extensively by AIR.¹ AIR will develop the RCM using the *CostOut* tool^{2 4}, using extant administrative data on the unit costs of labor and non personnel resources as well as records of the time spent by salaried personnel collected through surveys/log records from staff responsible for coordinating and implementing the intervention efforts. AIR will compute the costs for the intervention as well as the specific costs of different intervention components and will separately report the intervention's start-up costs (e.g., teacher training and material costs) and continuing costs (e.g., the costs of teacher time during the implementation process). AIR will then generate cost-effectiveness estimates based on the cost estimates and results from the impact analyses.

2. Guidance About Effective Strategies Suitable for Replication

The proposed evaluation will generate useful guidance about effective strategies for implementing and scaling Upstart in diverse settings by (a) including a large sample representing diverse settings; (b) deliberately assessing whether the impact of Upstart differs for different students, classrooms, and school conditions (i.e., moderators); and (c) analyzing data from multiple sources, as detailed in the following sections.

¹ See <http://www.air.org/topic/p-12-education-and-social-development/school-finance>.

² A tool created by the Center for Benefit-Cost Studies in Education at Teachers College, Columbia University.

(a) Diverse Settings. The Pre-K programs and schools included in the proposed project will come from states and districts representing diverse settings (e.g., geography, demographics, size, graduation rate, percentage of English learners). The commitment we received from many SEAs and LEAs gives us flexibility to expand the program into a very diverse population (considered important for generating guidance for future replications).

(b) Differential Impact Analyses. The proposed evaluation will generate useful guidance about the relative effectiveness of Upstart for different student groups and settings through differential impact analyses, which will assess the extent to which the impact of the program is moderated by the characteristics of students, classrooms, and schools (see Exhibit 6).³ These results will be crucial in guiding replication efforts to scale Upstart, as they may identify settings and populations for which the program is or is not well suited and also support other education leaders in determining if Upstart will work in their context.

Exhibit 6. Potential Moderators at the Student, Classroom, and School Levels

Student-Level	Classroom-Level	School-Level
Race/ethnicity, eligibility for free or reduced-price lunch, special education, English language learner status, program usage (e.g., high versus low).	Teacher experience, class size, and classroom average prior achievement	School size and demographic composition (e.g., percentage of minority/low-income students)

(c) Analyses of Implementation Data From Multiple Sources. The evaluation team will collect and analyze implementation data from multiple sources throughout the four intervention years to provide guidance and lessons learned for future replication or testing

³ In addition to differential impact analyses, AIR also will estimate Upstart's impact within each key student subgroup separately, particularly subgroups of high-need students (e.g., minority students and low-income students).

of Upstart in other settings. In addition to implementation-related information tracked by Upstart, AIR will examine implementation fidelity (RQ 4) based on data collected by Upstart software and surveys.⁴ Analysis of the fidelity of implementation of the scaling strategy will focus on issues such as training, monitoring, and support, and examining variations in implementation fidelity will help identify the barriers to implementation and scaling of the program.

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

The design of the proposed evaluation is informed by clearly articulated key components, mediators, and outcomes of the Upstart program as depicted in the logic model presented in Appendix G. The central components of the Upstart intervention are adaptive literacy and math software, trainings for parents and educators, and family/educator engagement and predicted key outcomes for students are reading and math achievement.

Project Overall Summary: Strong evidence supports **Upstart** configurable models as a means to lift overall reading and math achievement; and several randomized and quasi-randomized trial studies support using Upstart to achieve this, with the added benefit of strengthening SEL capacities at the same time. The AIR team has the passion, capacity, and qualifications to lead this evaluation and work toward addressing the access to quality early childhood reading and math education in rural areas faces by removing barriers and creating greater access to the benefits Upstart offers students.

⁴ The parent and teacher surveys will be administered to both treatment and control parents and teachers each spring, which will allow us to gather data on the engagement of both control and treatment parents and teachers.

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