



Summer Success: A Comprehensive Kindergarten Readiness Camp

Kiren S. Khan, Ph.D., Laura M. Justice, Ph.D., Kari Welch, A.S., Jackie Goodway, Ph.D.,
Maureen Myrttil, M.A., Ruri Famelia, Ph.D. & Elaine Joy, M.A.

EXECUTIVE SUMMARY

Ensuring that all children arrive to kindergarten 'ready to learn' is one of the most pressing issues in early childhood policy and practice. Children from low-income backgrounds are at particular risk for having poorer literacy and social skills upon kindergarten entry (Hair, Halle, Terry-Humen, Lavelle, & Calkins, 2006). Thus, there is a great need to develop and test comprehensive kindergarten readiness programs that target a broad range of skills, including foundational academic skills, social-emotional competencies, physical health, and creative skills, in order to reduce disparities in school readiness. This paper presents preliminary data on the feasibility and effectiveness of Summer Success, a community-based four-week program developed to provide rich instructional programming to children prior to their transition to kindergarten.



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The Schoenbaum Family Center (SFC) and
Crane Center for Early Childhood Research and Policy (CCEC)

*Partnering to improve the children's well-being
through research, practice, and policy.*

Recommendations

For Policymakers

- Provide subsidies to programs that offer kindergarten readiness programs for children from low-income backgrounds that target a broad range of readiness skills, including language and literacy, math, social-emotional, motor, and creative skills;
- Identify sources of funding for kindergarten readiness programs in high-need areas based on Kindergarten Readiness Assessment results; and
- Create incentives for pre-service teachers to participate in kindergarten readiness programs as part of their training.

For Practitioners

- Promote parent engagement in kindergarten readiness programs to ensure that children continue their learning at home. For example, provide daily and/or weekly feedback to parents regarding their child's behavior and progress, along with suggestions for activities to support learning at home;
- Develop differentiated lesson plans as part of kindergarten readiness programs that accommodate the strengths and weaknesses of individual children; and
- Provide supportive and positive learning environments in kindergarten readiness programs to encourage curiosity, empathy, and executive functioning skills in addition to foundational academic skills.

For Researchers

- Develop and evaluate kindergarten readiness programs that target multiple skills and domains, and determine for whom and under what conditions these are effective;
- Identify children who are priority candidates for kindergarten readiness programs and who are likely to benefit. For instance, children with poor alphabet knowledge may be prime candidates for such programs given the predictive value of letter knowledge for later reading achievement; and
- Identify barriers that prevent children from participating in kindergarten readiness programs, and explore ways to help families overcome these barriers.



Background

It is well-recognized that children from low-income backgrounds are not as prepared for formal schooling as their peers from high-income backgrounds (Magnuson, Meyers, Ruhm, & Waldfogel, 2004). Furthermore, research evidence shows that children from low-income backgrounds have underdeveloped literacy and social skills compared to their peers at school entry (Hair et al., 2006). This disparity in kindergarten readiness skills may persist over the years, resulting in an “achievement gap” between children from low-income and high-income backgrounds (Lee, 2002). In part, this achievement gap may be explained by the considerable variability in children’s prekindergarten education experiences and in parental involvement in children’s cognitive and social development (Connell & Prinz, 2002; Miedel & Reynolds, 1999).

Prekindergarten education programs, such as the Chicago Parent-Child Centers (Reynolds, Ou, & Topitzes, 2004), the Abecedarian Project (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002), and Head Start (Currie & Thomas, 1995) have attempted to address this achievement gap. However, not all families from low-income backgrounds can take full advantage of such programs due to limited available slots and high rates of residential mobility associated with living in poverty. Additionally, few programs operate during the summer months, an optimal period of time immediately preceding children’s transition to kindergarten. In response, the Schoenbaum Family Center (SFC) and the Crane Center for Early Childhood Research and Policy (CCEC), together with community partners, developed **Summer Success: A Comprehensive Kindergarten Readiness Camp** for children residing in a mixed-income, urban neighborhood, that prioritized recruitment among children with limited early childhood education experience. Summer Success’ approach to improving children’s kindergarten readiness skills was to target a wide range of academic and non-academic domains that researchers, educators, and parents consider important for a successful transition to kindergarten.

Children’s kindergarten readiness includes the “social, political, organizational, educational, and personal resources that support children’s success at school entry,” rather than simply their academic and social skills (Piotrkowski, Botsko, & Matthews, 2001, p. 540). Thus, Summer Success emphasized the importance of community resources, parental influences, and a wide range of child-level skills in four domains critical to kindergarten readiness: (1) language and literacy, (2) math, (3) social-emotional, and (4) motor skills, while encouraging and facilitating opportunities for hands-on learning and creative expression.



Aims

This paper outlines the development of Summer Success, and addresses the following aims:

1. To describe the feasibility of implementing a comprehensive kindergarten readiness summer camp targeted to children with limited early childhood education experience; and
2. To examine the effectiveness of Summer Success in improving children's kindergarten readiness over the course of a four-week summer camp program.

Methods

Summer Success was piloted in the summers of 2016 and 2017 through a partnership supported by the Schoenbaum Family Center and the Crane Center for Early Childhood Research and Policy, The Ohio State University, The City of Columbus, FutureReady Columbus, and Columbus City Schools. The Columbus Metropolitan Library, the Columbus Museum of Art, the Center of Science and Industry, Franklin Park Conservatory and Botanical Gardens, and the Columbus Trolley Company also donated field trips and other auxiliary services for the pilot Summer Success programs.

Both the 2016 and 2017 pilot Summer Success programs included two, consecutive four-week sessions, each enrolling 12 children. During the summer of 2016, the first year of implementation and the focus of this report, the first four-week session was offered as a full-day camp, providing seven hours of programming per day and 35 hours per week. The second four-week session was offered as a half-day camp, providing three hours of programming per day and 15 hours per week. Both a full-day and half-day session of Summer Success were offered during the first year of implementation to gauge, in part, caregivers' interest in a full- versus half-day program.

Families were recruited through a partnership with the neighborhood elementary school, a local home-visiting program, and a local public housing program. The target population for recruitment included children from low-income backgrounds entering kindergarten with little-to-no formal early childhood education experience. Fifty-eight percent of program participants were Weinland Park neighborhood residents, whereas 42% resided in other Columbus neighborhoods. Seventeen of the 24 children were from low-income backgrounds and qualified for public assistance programs, such as Women, Infants, and Children (WIC), the Supplemental Nutrition Assistance Program (SNAP), free or reduced lunch, and public housing.



Summer Success Curriculum

Five staff members, including a preschool teacher, a graduate student, and three undergraduate students studying education, administered Summer Success. The Summer Success curriculum was developed in consultation with researchers, educators, and community partners in the field of early childhood education. The curriculum was intended to deliver a four-week, intensive program with low teacher-to-child ratios that allowed for high-quality, individualized instruction. The Summer Success curriculum included four domains of learning critical to kindergarten readiness: (1) language and literacy; (2) math; (3) social-emotional; and (4) motor skills. For each domain, specific learning targets were identified. Each learning target was introduced in a specific sequence to allow for scaffolding of difficulty. Creative arts and auxiliary activities, such as field trips, were also included throughout the program to reinforce and expand upon instruction across these domains. Table 1 lists the learning domains along with their corresponding learning targets.

DOMAIN	LEARNING TARGET
Language and Literacy	<ol style="list-style-type: none"> 1. Understand and identify story components, such as setting, characters, and events; 2. Identify and sequence story events; 3. Identify and isolate the initial sounds of words; 4. Identify and isolate phonemes (sounds within words), and count the number of phonemes; and 5. Identify upper- and lower-case letters of the alphabet.
Math	<ol style="list-style-type: none"> 1. Count and write numbers 1-20; 2. Count and identify the amount of objects in total; 3. Sort and classify objects by some property and identify common and differing features among sets; and 4. Demonstrate understanding and use quantity/size comparisons, such as more/less, and same/different.
Social-Emotional	<ol style="list-style-type: none"> 1. Demonstrate self-regulation skills, such as compliance with routines and transitions, following rules, and turn-taking; and 2. Understand emotions and their expression, (i.e. identify emotion based on facial expressions, predict how others might feel, use emotion language).
Motor Skills	<ol style="list-style-type: none"> 1. Demonstrate object control skills, including rolling, catching, throwing, kicking, dribbling, and striking; and 2. Engage in daily physical activity

 **Table 1.** Summer Success domains of learning and their corresponding learning targets.

The learning domains and targets were addressed in daily lessons that included the following components: (a) reading of storybooks in a large group, (b) group discussion of these storybooks, (c) small-group free choice activities, and (d) large-group instruction. Unstructured playtime and/or a structured gym class modeled after the Successful Kinesthetic Instruction for Preschoolers (SKIP) program were also included in daily programming (Goodway & Robinson, 2006). Figure 2 describes a large-group activity from the Summer Success curriculum that introduces the language and literacy learning target, “Identify and sequence story events.”

HOW SEEDS GROW

Learning Target: Identify and sequence story events.

Steps:

- Prepare a chart depicting the life cycle of a flower in three stages: (1) seeds, (2) sprout, and (3) flower.
- Discuss with children how flowers grow, emphasizing the words, “first, next, and last.”
- Prompt children to repeat the stages back to the teacher, using the words, “first, next, and last.”
- Expand this activity by encouraging children to fill pots with potting soil and plant flower seeds that they will care for during the duration of the Summer Success program.
- After planting the flower seeds, discuss what will happen to the seeds next. Ask children what the seeds will need first, before they can grow (i.e. water, sunlight).

MATERIALS:

- How Seeds Grow Chart
- Pots
- Potting Soil
- Flower Seeds

RELATED READING:

- Where’s My Teddy?* by Jez Alborough
- Counting Crocodiles* by Judy Sierra
- The Little Mouse, the Red Ripe Strawberry, and the Big Hungry Bear* by Audrey Wood (optional)

 **Figure 2.** Sample Summer Success large-group activity related to identifying and sequencing story events.

The pilot sessions of the Summer Success program also included parent engagement activities, creative arts, and field trip opportunities to enrich children’s learning. At the beginning of the program, children and their families participated in a family information night consisting of a brief introduction to Summer Success, dinner, and a demonstration of a group storybook reading. Then, caregivers received weekly newsletters detailing their child’s progress along with suggested activities for supporting targeted kindergarten readiness skills at home. Other weekly activities included field trips to the local library, conservatory, science center, or museum of art; instruction in glass art from a local glass artist (see Figure 3 for sample art projects) and group-based dramatic play activities led by a local theatre student. At the end of the program, each child’s family received a packet of books that supported the Summer Success learning targets.



^ **Figure 3.** Sample glass art projects created during Summer Success by participating children with guidance from a local glass artist. Glass art was used to enhance math learning targets related to counting, sorting and classifying objects, and using quantity/size comparisons. Children's self-portraits are depicted on the left and insect projects are depicted on the right.

Summer Success Screener

During the first week of the Summer Success program, trained staff members administered the Summer Success Screener to each child in order to identify specific readiness skills needing additional development and support. The screener, developed specifically for Summer Success, was administered again to each child during the last week of the program to evaluate the impact of Summer Success on children's kindergarten readiness skills.

The following measures were used to screen children's readiness skills at program entry and the end of the program:

1. Language and Literacy: A subtest of the Test of Narrative Language (Gillam & Pearson, 2004), The Get Ready to Read! Screener-English (GRTR-English; Whitehurst & Lonigan, 2001), The Quick Letter Name Knowledge Assessment (Q-LNK; Tortorelli, Bowles, & Skibbe, in press), phoneme segmentation task, initial sound task
2. Math: Counting and cardinality task, categorizing and patterning task, math language task
3. Social-emotional: Head-to-Toes task (Ponitz, McClelland, Matthews, & Morrison, 2009)
4. Motor skills: Test of Gross Motor Development – 2nd edition (TGMD-2; Ulrich, 2000)

In addition, a waist-worn accelerometer (ActiGraph's Bluetooth Smart wGT3X-BT) was used to measure children's physical activity levels.

Instruction during the four-week camp was individualized based on each child's performance on the above assessments. For instance, children who had very low counting and cardinality skills at the start of the program would receive individualized supports during activities that targeted these skills.

Results

Results presented herein focus on the 2016 offering, in which 24 children participated. (Results from the 2017 offering are currently being analyzed).



AIM 1. To describe the feasibility of implementing a comprehensive kindergarten readiness summer camp targeted to children with limited early childhood education experience, we focused on determining the extent to which the enrolled children experienced instruction on the Summer Success Learning Targets during the four-week program. That is, we were interested in determining whether a ‘camp-based environment’ could feasibly be used to provide explicit instruction on targeted kindergarten readiness skills.

To address this goal, we selected four separate days of each four-week camp session, representing one day per week, during which we conducted a systematic observation to measure children’s exposure to learning targets within the language and literacy, math, and social-emotional domains of learning. Each observation lasted 20 minutes for Session One and Session Two (see the blue and orange bars on Figure 4).

Each observation session was scored based on how often Summer Success staff provided explicit instruction on targeted kindergarten readiness skills. A score of “0” corresponded to no explicit instruction, a score of “1” corresponded to a single observed incident of explicit instruction, a score of “2-3” corresponded to two to three incidents, and a score of “4+” corresponded to four or more incidents of explicit instruction on learning targets. Results show that children were exposed to explicit instruction on learning targets at least once on most of the skills within the language and literacy, math, and social-emotional domains of learning. These results indicate that a comprehensive kindergarten readiness camp can feasibly be used to provide explicit instruction on targeted kindergarten readiness skills to children with limited early childhood education experience.



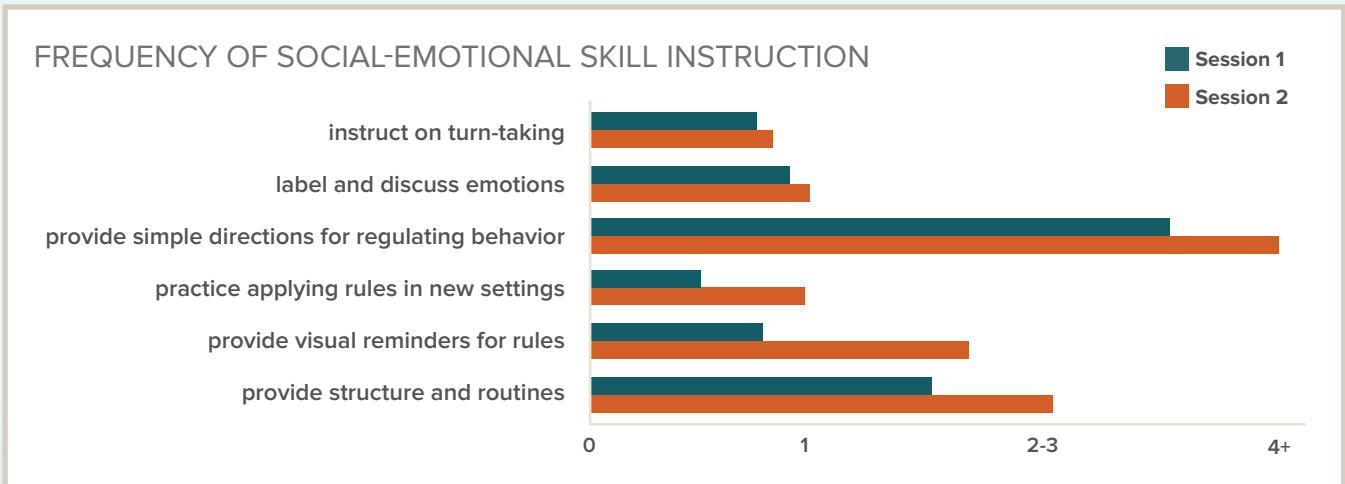
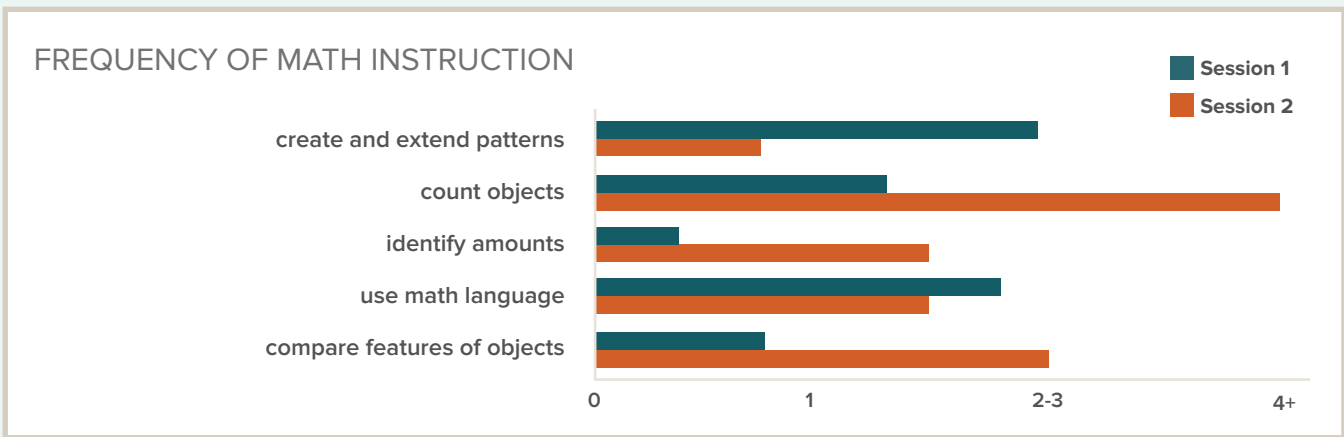
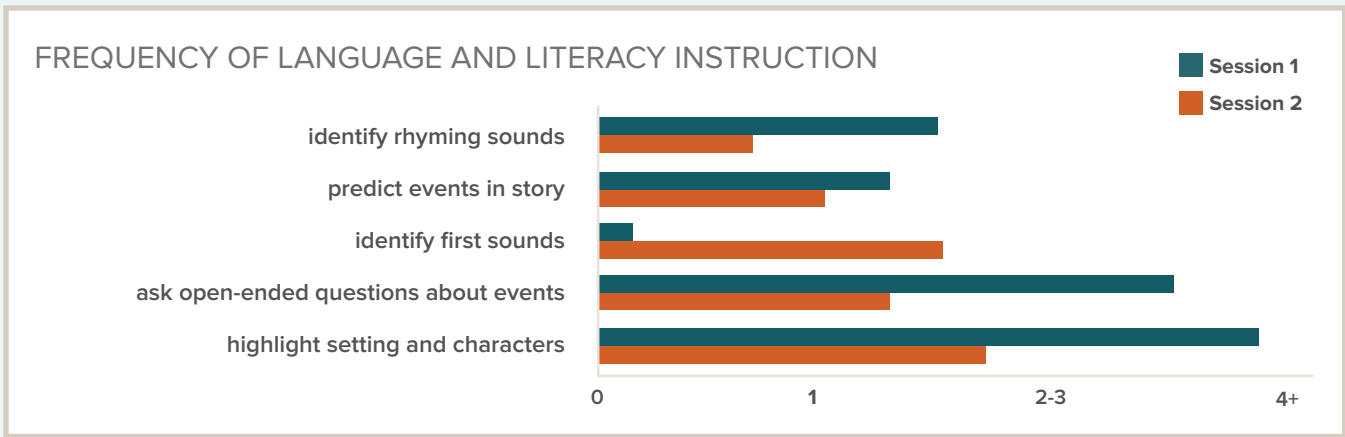


Figure 4. Frequency of instruction on target skills.



AIM 2. To examine the effectiveness of Summer Success in improving children’s kindergarten readiness over the course of a four-week summer program, children’s average performance on academic, social-emotional, and motor skills were compared from program entry to program end. For this purpose, we used children’s scores on the screener and the TGMD-2 from Week 1 and Week 4 of the two Summer Success sessions to measure change in children’s kindergarten readiness skills from the beginning to the end of the program.

First, we created language and literacy, math, and social-emotional composite scores from the screener pre- and post-test data. Second, we analyzed the pre- and post-test data from the locomotor and object control subscales of the TGMD-2 to determine percentile rankings in locomotor and object control skills, and created a composite of these subscales (the Gross Motor Quotient) to measure percentile rankings in the overall motor skills domain.

Figure 5 demonstrates the change in language and literacy, math, and social-emotional composite scores from the beginning to the end of the Summer Success program. As can be seen, children’s language and literacy, math, and social-emotional composite scores increased significantly from the start to end of the Summer Success program, representing approximately a four-week period. Change within each domain was statistically significant (all p s < .05) and was medium-to-large in practical significance (all effect-size estimates, d , > .5). In other words, these results show that participation in the Summer Success program is associated with significant improvements in children’s kindergarten readiness skills in the language and literacy, math, and social-emotional domains.

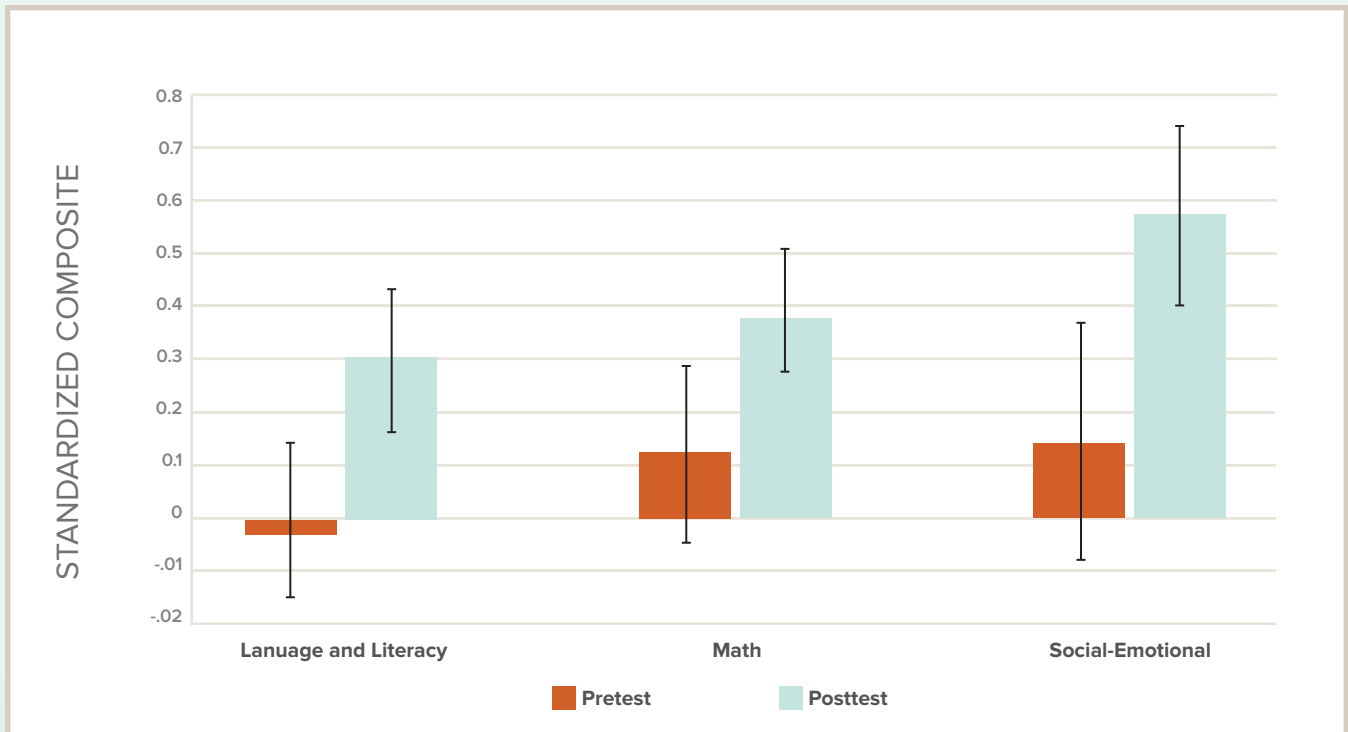


Figure 5. Change in children’s language and literacy, math and social-emotional composite scores on the Kindergarten Readiness Screener from beginning to end of participation in the Summer Success program.

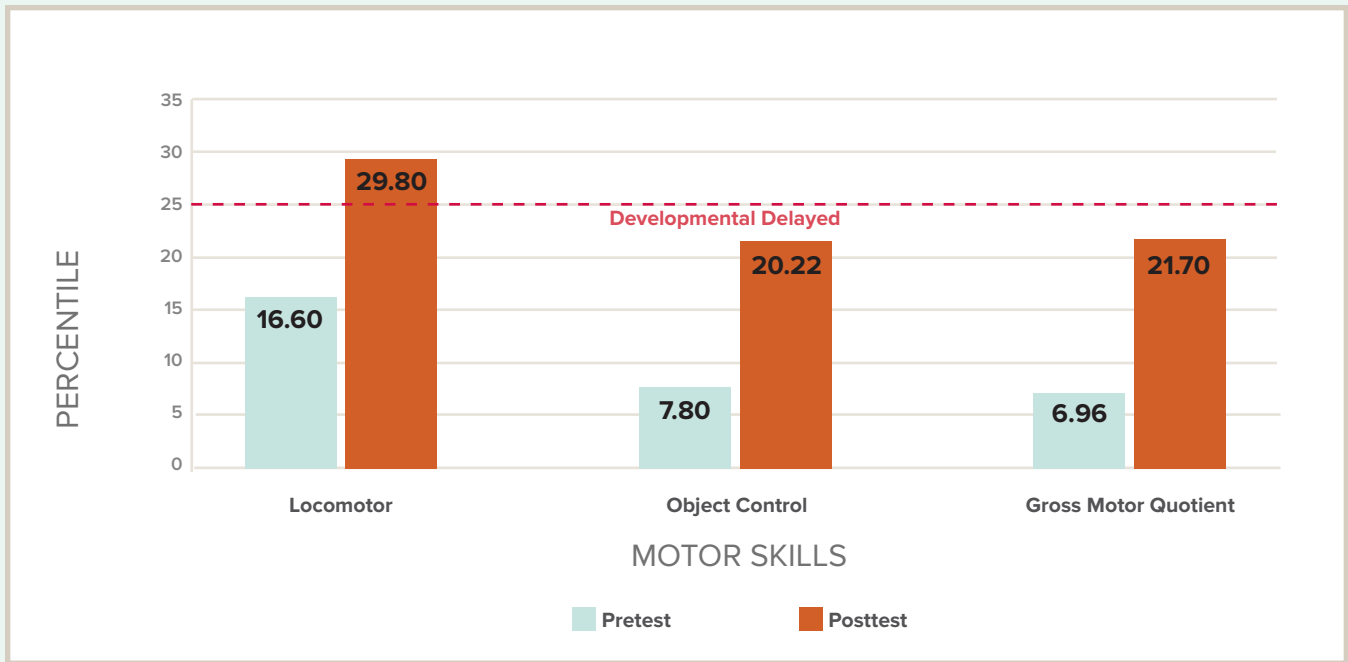
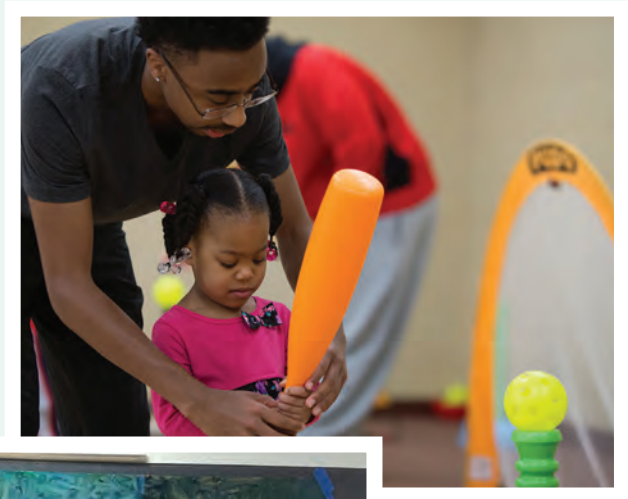


Figure 6. Change in children's locomotor, object control and overall motor skills (Gross Motor Quotient) percentile rankings on the TGMD-2 from beginning to end of participation in the Summer Success program.

Figure 6 shows the change in children's percentile ranks on locomotor skills, object control skills, and overall motor skills (the Gross Motor Quotient) from the beginning to the end of the Summer Success program. As can be seen, children's percentile rankings within the motor skills domain improved significantly from the start to end of Summer Success. However, on average, children's percentile ranking remained near the developmental delay threshold at the end of the Summer Success program. Nevertheless, these results show that participation in the Summer Success program is also associated with significant improvements in children's kindergarten readiness skills in the motor skills domain.



Discussion

Identifying strategies to improve children’s kindergarten readiness skills and ensure that all children enter school ‘ready to learn,’ is an issue of keen interest to researchers, practitioners, and policy-makers. **Summer Success** is a partnership involving the Schoenbaum Family Center and the Crane Center for Early Childhood Research and Policy, and is an innovative strategy to prepare children with limited-to-no early childhood education experience for kindergarten through a four-week ‘camp’ experience during the summer preceding kindergarten.

Observational data from the pilot implementation of Summer Success in 2016 demonstrated that the program was successful in providing explicit instruction on learning targets in the language and literacy, math, and social-emotional domains of learning. In other words, these results indicate that a comprehensive kindergarten readiness camp can feasibly be used to provide explicit instruction on targeted kindergarten readiness skills to children with limited early childhood education experience.

Pre- and post-test data available from the pilot implementation of Summer Success in 2016, representing 24 participating children, showed that children improved significantly in language and literacy, math, and social-emotional skills. In addition, effect sizes (which measure the importance of the change between pre- and post- test scores) for our data were medium to large in size, which is noteworthy given the relatively short duration of the program. Our findings are limited by the lack of a control group in that we cannot determine whether children’s gains during Summer Success simply reflect maturation. However, we speculate that the significant gains in kindergarten readiness skills that we observed can largely be attributed to participation in Summer Success; especially when we consider that children tend to decrease in developmental gains over the summer months due to the ‘summer slide’ phenomenon.

Another finding warranting attention concerns the inclusion of the motor skills domain within Summer Success. Often, concerns about children’s kindergarten readiness focuses primarily on academic and social-emotional skills, with limited attention to motor skills development. However, given rising childhood obesity rates in the United States, ensuring that children develop fundamental motor skills and engage in daily moderate to vigorous physical activity is a matter of critical importance. Although pre- and post-test data showed significant gains in children’s motor skills during Summer Success, in general, children still scored near the developmental delay threshold in motor skills at the end of the program. This finding highlights the importance of including moderate to vigorous physical activity and practice with object control skills (i.e. throwing, catching, kicking, striking, rolling, and dribbling) in the programming of kindergarten readiness camps.



Conclusion

In summary, results from the pilot implementation of **Summer Success** in 2016 demonstrated that a comprehensive kindergarten readiness summer camp targeted to children with limited early childhood education experience can feasibly provide explicit instruction on kindergarten readiness skills. Participation in Summer Success was also associated with significant gains in children's kindergarten readiness skills in language and literacy, math, social-emotional and motor skills domains. These multi-domain improvements are promising, especially when considering the relatively short duration of the program. We recognize that the **Summer Success** program benefitted from significant support from multiple community stakeholders that may not be available to other early childhood education programs serving children from low-income backgrounds. As a result, we recommend that researchers, policymakers, and practitioners increase their investment in intensive, high-quality kindergarten readiness camps that target multiple domains of learning and support opportunities to take the Summer Success program to scale. With this goal in mind, we have provided Summer Success implementation materials, including daily lesson plans and assessments, on our website at earlychildhood.ehe.osu.edu. These materials can be used at no charge by other community groups to enhance children's kindergarten readiness. Finally, the Schoenbaum Family Center and Crane Center for Early Childhood Research and Policy, with additional support from community stakeholders, will continue to implement the Summer Success program, evaluate its effectiveness in improving kindergarten readiness skills for children from low-income backgrounds, and explore opportunities and challenges to taking the program to scale.



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The Crane Center for Early Childhood Research and Policy (CCEC)

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