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# 50 Years of Research to Improve Preschool Curricula: Is there Progress?

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This thoughtful and comprehensive monograph by Kimberly Nesbitt and Dale Farran (2021) comes at an opportune time for the study of curricula in early childhood education (ECE). Addressing the first goal of the monograph, the authors provide a valuable study of one comprehensive preschool curriculum, *Tools of the Mind*, illustrating a rigorous approach to evaluating the program's impact on children's school-readiness skills and on classroom teaching processes. The in-depth exploration of factors that may have diminished the intervention's effectiveness is especially noteworthy and illustrates the value of research that extends beyond outcome testing and has potential to inform future program design. The second goal of the monograph was to consider the broader question of whether the use of intentional, scripted curricula in preschools can enhance children's school readiness and school success. In my commentary I focus on the second of these goals.

Research on preschool curriculum effectiveness is complex in ways that make it difficult to navigate and interpret, as Nesbitt and Farran describe. From the initiation of publicly funded preschool in the U.S. in 1965, the value of intentional instruction has been controversial (Chambers, Cheung, & Slavin, 2016). Contemporary preschool curricula vary in the extent to which they embrace developmental-constructivist models of early development ("whole child" curricula) and those that emphasize planned learning activities ("content-specific" curricula; Jenkins, Duncan et al., 2018). Most research evaluations are efforts to validate a particular curriculum. It is only recently that the accumulation of curriculum efficacy trials allows researchers to compare the relative impact of different approaches to preschool curriculum design (Jenkins & Duncan, 2017). These emerging analyses suggest promising directions for future preschool programming that blend critical elements identified by developmental-constructivist models and planned learning activities. In the remainder of this commentary, I provide a brief history to contextualize this research, an overview of the emerging critical elements of the blended approach, and a discussion of some key challenges facing future research.

## Preschool Curriculum Design: A Brief Retrospective

When the first publicly funded U.S. preschool program (Head Start) was initiated in 1965, preschool designs were informed primarily by developmental-constructivist models (Mills, 2007). These models emphasized the importance of child-initiated exploration, discovery, and positive social interactions in early learning, and encouraged teachers to provide rich and varied learning opportunities that were responsive to child interests (Mills, 2007). In contrast, an alternative approach described by behavioral learning experts at that time described the need for focused teacher-directed instruction and the use of content-specific, sequenced learning materials to promote literacy and math skills (direct instruction; Gersten, Woodward, & Darch, 1986).

The developmental-constructivist perspective influenced early conceptualizations and measures of preschool quality. For example, the initial version of the Early Childhood Environment Rating Scale that was developed in 1980 focused primarily on the characteristics of the preschool learning environment, time use, and the teachers' professional knowledge (Stodji, Schaak, & Le, 2018). Over time, conceptions and measures of preschool quality shifted to accommodate the growing expectation that publicly funded preschool would promote gains children's school-readiness skills. The 1998 reauthorization of Head Start represented a watershed moment in the shift to child outcomes-based evaluation and preschool program accountability. The subsequent years were characterized both by an acceleration in preschool academic expectations in schools (Bassok, Latham, & Rorem, 2016) and by increases in research efforts to identify preschool features associated with child school readiness outcomes (Griffin, 2010).

Accumulating research revealed that structural and organizational characteristics of ECE programs (e.g., teacher educational credentials, class size, student-teacher ratios, and time spent in different kinds of activities) were generally unrelated to gains in children's language, literacy, or math skills (Mashburn et al., 2008). In contrast, classroom teaching processes, including the quality of student-teacher interactions, positive behavioral management, and language-use showed significant although very small associations with child outcomes, with effect sizes in the general range of d = .05 to .15 (Auger, Farkas, Burchinal, Duncan, & Vandell, 2014). Measures of instructional quality were most consistently associated with preschool gains in academic and language skills, whereas measures of emotional climate were often associated with student social competence and classroom behavior problems (Mashburn et al., 2008; Pianta, Downer, & Hamre, 2015).

Unfortunately, research also documented that rates of instructional quality were very low in most publicly funded preschool programs, likely attenuating student skill acquisition (Pianta et al., 2015). Research reviews suggested that free-choice activities and pretend play were not necessarily or uniquely associated with preschool learning (Chien et al., 2010; Lillard et al., 2013). Chien and colleagues (2010) found that children who spent large amounts of time in free-choice activities (as was the case for about half the children in the nationally representative sample under study) were significantly less likely to gain academic skills than were children who experienced focused instruction or scaffolded learning experiences.

A new wave of preschool intervention trials emerged focused on two strategies designed to improve child school readiness outcomes: 1) providing teachers with intensive professional

development support (Pianta et al., 2015), and 2) enriching learning materials and instructional guidelines with classroom curriculum (Griffin, 2010). In general, attempts to promote academic-skill acquisition in children through supporting professional development alone (that is, without also using a content-specific curriculum) proved disappointing (Piasta et al., 2017). Findings often paralleled those found in the Early Reading First initiative, which significantly increased teacher professional development and improved the targeted preschool teaching processes (i.e., classroom organization, language use, book reading, literacy instruction) but which revealed academic gains in only one child outcome – letter knowledge (IES, 2007).

As described by Nesbitt and Farran in their overview of the PCER study, some curriculum-based intervention research proved equally disappointing. However, the individual trials in PCER were significantly under-powered. The What Works Clearinghouse (2020) has established an effect size of .25 as a benchmark for educationally significant effects, but the individual curriculum trials within PCER were not designed to detect effects smaller than .34 - .69 (PCER, 2008). Subsequent re-analyses of PCER data by Jenkins, Duncan, and colleagues (2018) and Nguyen and colleagues (2018) indicated that the content-specific curricula were significantly more likely to promote gains in the targeted academic domains than were the whole-child curriculum. Meta-analyses of a broader range of efficacy trials also supported the potential of content-specific curricula to promote preschool literacy skills (Chambers et al., 2016), math skills (Wang, Firmender, Power & Byrnes, 2016), and social-emotional skills (Murano, Sawyer, & Lipnevich, 2020). These findings fueled the emerging consensus that content-specific curricula (using guided play teaching strategies and providing concurrent support for professional development) represented “the best hope” for improving the impact of current “usual practice” preschool on child school readiness skills (Phillips et al., 2017; Yoshikawa et al., 2013). Yet not all content-specific curriculum were equally effective or consistent at promoting child skill growth, creating a need to better understand the critical elements that account for the success of the approach and to identify areas in need of future research.

## Critical Elements of Effective Content-specific Preschool Curricula

Researchers have begun to speculate about the critical elements that may characterize effective content-specific preschool curricula (Weiland et al., 2018). In the “lessons learned” section of their monograph, Nesbitt and Farran add to this discussion with insight, based upon their thorough exploration of their *Tools* trial.

A key characteristic of content-specific curricula is that they include lesson plans which lay out learning activities strategically. These plans follow a scope and sequence of skill components which are informed by cognitive (and/or social-cognitive) learning models which intend to reach more advanced concepts by first establishing foundational components delivered in a progressive and cumulative fashion (Chaudry, Morrissey, Weiland, & Yoshikawa, 2017). Material to be learned is embedded within games, activities, and stories designed to engage young children in active learning (Weiland et al., 2018). The approach has been described as guided play, blending developmental-constructivist principles of early learning (e.g., active child engagement, concept discovery) with planned activities designed to elicit child thoughts and reflections in specific learning domains (Zosh et al., 2018). These programs are content-specific in recognition of the unique learning foundations and progressions involved in different domains (e.g., literacy, math, social-emotional learning). Correspondingly, variation in impact

may occur across curriculum-based programs as a function of the adequacy of the underlying learning model (e.g., the skills selected for focus, the pacing or order of the learning sequences) or the success with which planned activities engage children and elicit the intended learning opportunities for children.

Professional development (e.g., through training workshops and coaching) is a key component of these programs because the teacher's skill in presenting the learning activities and supporting child discovery and learning are critical for effective implementation (Hamre et al., 2010). The learning activities are designed to create intentional opportunities for teacher responses, expansions, and clarifications or other feedback, all of which can scaffold child learning (Zosh et al., 2018). Curriculum guides often provide scripted examples of lesson presentations, describing the key concepts and identifying key points for teachers to consider and emphasize in discussions with children. In addition, training workshops and individual coaching support teachers in understanding and applying targeted teaching practices in flexible and generalized ways during program activities and throughout the day. Coaching relationships are intended to support teacher ownership and agency, empowering teachers to adapt curriculum-based strategies to fit their personal style and work effectively in their dynamic classroom (Weiland et al., 2018). Program efficacy may thus vary as a function of the quality of the guides and materials provided to teachers, the intensity and quality of professional development support provided, the targeted teaching practices selected for focus, or teacher perceptions of intervention feasibility, acceptability, and usefulness. In the *Lessons Learned* section of their monograph, Nesbitt and Farran consider how some of these program design features may have affected the implementation quality of *Tools* and its impact on teacher and child outcomes.

## Future Research Needs

The monograph by Nesbitt and Farran raises several important points about limitations of the current research base and identifies critical directions for future research on preschool curricula that warrant emphasis here. As the monograph authors note, most content-specific curricula are supplemental and focus on emergent literacy and language skills or math skills, although some, such as *Tools of the Mind,* focus on social-emotional learning (see also Murano et al., 2020). Some content-specific curricula have proven effective at boosting gains in other skill domains beyond the skill domain they target (Nguyen et al., 2018). Research is needed to clarify the optimal skills to target in preschool, including the skills that show the longest-lasting benefits and those that promote generalized gains across skill domains. In some programs, two or more content-specific programs are combined; for example, the Boston public prekindergarten program (Weiland & Yoshikawa, 2013) combined a math curriculum (Building Blocks; Clements & Samara, 2008) and a literacy-language curriculum (Opening the World of Learning; Schickedanz & Dickinson, 2005). Research is also needed to understand how many content-specific curricula can be integrated and implemented effectively in a preschool classroom. There is a potential danger in combining multiple content-specific curricula, as it could undermine effective implementation of the individual programs or decrease the level of focus needed to boost skills. For example, Nesbitt and Farran wonder whether the new activities that were added to *Tool*s in order to cover more content areas may have decreased program effectiveness by making the program difficult to implement with fidelity. These are issues that require careful study.

In addition, the way in which curriculum-based learning activities and targeted teaching practices may contribute to program effectiveness is not well understood. Nesbitt and Farran suggest that a program's impact on teaching processes mediates the curriculum's impact on children's skill acquisition. It is also possible that variation in the quality and sequencing of the learning activities in a program is a direct determinant of children's skill acquisition. If so, then skill acquisition may reflect two distinct effects of curriculum-based programs, that is, first, the content and organization of the learning activities provided, and second, the teaching strategies and increases in instructional support promoted). These two direct effects may be distinct and complementary (Domitrovich, Bierman, Nix, Gill, & Gest, 2012).

Additional longitudinal research is needed to better understand why many preschool intervention effects fade over time and to identify strategies that might enhance sustained benefits. Researchers have suggested multiple factors that might affect the long-term impact of content-specific preschool programming (Abenavoli, 2019). Effects that are larger at the end of preschool may promote longer-term benefits than do smaller preschool effects (Chaudry et al., 2017). Preschool skills acquired in domains that are not intensively targeted in elementary school, such as social-emotional skills or language skills, may show longer-term benefits than skills in domains such as literacy that are typically the focus of intensive remediation after kindergarten entry (Bierman, Heinrichs, Welsh, & Nix, 2020). Conceptually, gains made during preschool will have the greatest impact on later school performance when they occur in areas that are foundational and represent the precursors of more advanced skills taught in elementary school. However, ongoing efforts may be needed to support those skills across the preschool-to-kindergarten transition, including aligning instruction and providing instruction at a level that capitalizes on preschool gains (Jenkins, Watts et al., 2018).

Nesbitt and Farran also identify gaps in the research-to-practice pipeline that require attention in future research. As they note, it is difficult for ECE program administrators to identify and access preschool curriculum with evidence of efficacy. In addition, some policy-based regulations and widely-used evaluation measures favor "whole child" curricula in ways that may disadvantage programs using content-specific curricula (Stodji et al., 2018). These represent important future challenges that need to be addressed to promote the wider diffusion of research-based content-specific curricula in ECE programs. The conceptual and empirical contributions offered by Nesbitt and Farran (2021) make invaluable contributions to the field by suggesting ways to expand our tool kits for planning and evaluating intervention trials.

One encouraging step forward for the field is the emerging rapprochement between developmental-constructivist and cognitive/social-cognitive models of early learning. Fifty years ago, developmental-constructivist and direct instruction models held adversarial pedagogical positions. Since that time, findings from a rapidly-growing and sophisticated set of efficacy trials and longitudinal studies have provided new insights about preschool design features and intervention approaches that support teachers and promote child skill acquisition. Available research now suggests that blended preschool approaches that support high-quality student-teacher interactions and also use intentional, guided play strategies to expose children consistently to content-specific learning materials hold considerable promise for promoting child school readiness and future school success. At the same time, there is a great need for future research to refine developmental models and identify effective and feasible intervention

approaches. To conclude by responding to the question posed in the title of this commentary, I would answer that we have, indeed, seen progress, but also that there remains room (and need) for more.

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