

The power of P-3 school reform

The Child-Parent Center's Preschool to 3rd Grade Program is a model, supported by decades of research, for how schools can get students off to the right start.

By **Arthur J. Reynolds**



Early childhood education continues to be a high priority across the nation. Total public funding at all levels now exceeds \$30 billion annually (Council of Economic Advisers, 2016), which amounts to a doubling of investment over the past two decades (U.S. General Accounting Office, 1999), while public-private sector initiatives, such as Pay for Success, have also helped expand access (Temple & Reynolds, 2015). Today, nearly half of all four-year-olds in the country participate in prekindergarten and Head

Start (National Institute of Early Education Research, 2017), and more than 80% of kindergartners attend full-day programs (U.S. Department of Education, 2017), both of which represent large increases from previous decades.

Yet much of this increasing emphasis does not take into account two unfortunate realities. First, the size of the achievement gap by family income is large and increasing in the U.S. and internationally (Belfield & Levin, 2007; Braveman & Gottlieb, 2014; Piketty, 2014). In the 2015

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National Assessment of Educational Progress, 20% of U.S. 4th graders from low-income families were proficient readers compared to 52% of students from higher-income families (National Center for Education Statistics, 2016). This 32-point gap, which has increased by a third over the past decade, indicates that, to be effective, services must be proportionate to the need (Braveman & Gottlieb, 2014; Takanishi, 2016).

A one- or two-year preschool program, even if high-quality, can reduce this gap by only about a third (Barton & Coley, 2009; Reynolds, Hayakawa, et al., 2017). Early gaps in school readiness magnify over time and contribute to disparities in achievement proficiency and school completion. To realistically address these challenges, multiyear and multicomponent approaches that integrate services are needed.

The second unfortunate reality is that despite the overall evidence of positive benefits for good-quality programs, impacts of early childhood programs across all cultural and social contexts vary substantially in magnitude, consistency, and duration. Too much variation in program quality is a major reason, as is the fact that later education is not aligned to early learning (Camilli et al., 2010; Reynolds & Temple, 2008; Zigler, Gilliam, & Jones, 2006). Even if large and sustained effects and greater alignment do occur, these programs are rarely scaled to entire populations.

Given the size of achievement disparities, the relatively modest levels of achievement proficiency of students worldwide, and the limited reach of current programs, longer and more comprehensive strategies are needed. They also must have the capacity to scale since only a small fraction of programs are ever scaled to the population level (O'Connell, Boat, & Warner, 2009; Spoth et al., 2013). Multilevel programs in the first decade of life can redress these trends.

Preschool to 3rd grade (P-3) approaches, including the Chicago-based Child-Parent Center Preschool to 3rd Grade Program (CPC-P3), serve as models for scaling and sustaining an evidence-based program. CPC opened in 1967 with funding from Title I (which had been introduced just two years earlier, as part of the landmark Elementary and Secondary School Act of 1965). Although CPC started out as a comprehensive preschool program, it soon began to offer continuing services in kindergarten and the early grades as well, in hopes of avoiding the low achievement and family disengagement that seemed to follow the transition to local elementary schools (Reynolds, 2000). Supported by long-term evidence in the Chicago Longitudinal Study (CLS) and an Investing in Innovation Grant from the U. S. Department of Education, CPC-P3 now provides comprehensive education and family

support services in six Illinois, Minnesota, and Wisconsin districts (Human Capital Research Collaborative, 2012; Reynolds, Hayakawa, et al., 2016).

Three programs — Perry Preschool, Abecedarian Project, and the Child-Parent Centers (CPC) — are usually cited as evidence that high-quality early education increases long-term educational and economic success. But of these programs, only CPC is a currently implemented large-scale public program. Both Perry and Abecedarian were model demonstrations with attributes unlike nearly all contemporary programs. All Perry children had IQ scores that were two standard deviations below the national average, and each classroom was led by four teachers with master's degrees. Abecedarian was a university-based early education and care program beginning at three months of age, with very low child-to-staff ratios and a yearly cost per child in 2018 dollars of \$19,454 (Reynolds & Temple, 2008). Perry's yearly costs per child were \$13,659. At \$6,796 per year, CPC costs per child are substantially lower than either program.

Preschool to 3rd grade strategies and principles

The concept of P-3 and a service continuum evolved during the early years of the War on Poverty (Reynolds & Temple, 2008; Zigler et al., 2006). Fundamental to P-3 is developmental continuity. This is the extent to which learning environments are consistent and predictable over time in promoting healthy adjustment, especially during transitions. The ability to continue services in the primary grades provides such beneficial continuity (Ou & Reynolds, 2006; Reynolds, 1994; Reynolds, Magnuson, & Ou, 2010).

Key principles of school improvement developed in the 1970s have been rarely applied to early learning (Reynolds, Hayakawa, et al., 2017; Zigler & Styfco, 1993; Zigler & Trickett, 1978). Among these are principal leadership, school climate, and engaged learning communities (Bryk et al., 2010; Rury, 2016; Takanishi & Kauerz, 2008). A P-3 program that incorporates these principles — alongside a focus on curriculum reform, professional development, and small classes (Reynolds, Magnuson, & Ou, 2010) and newer comprehensive approaches for promoting effective school transitions — may not only have larger effects on development but may also help ensure that achievement gaps are closed and gains sustained.

In 2015, the U. S. Department of Education commissioned case studies of P-3 alignment and differentiated instruction for five identified P-3 models (Manship et al., 2016). These included FirstSchool, Early Works, Sobrato Early Academic Language Program, Boston Public Schools, and CPC-P3. These models are more integrative than

earlier approaches, such as Follow Through, but most emphasize instruction (Reynolds & Temple, 2008). Each of these programs had evidence of improved classroom quality and tailored instruction. Three showed improvement in student achievement, although only CPC-P3 had a comparison group (Reynolds & Temple, 2008). A RAND study of the State of Hawaii P-3 initiative also showed improvements in short-term achievement relative to comparison schools (Zellman & Kilburn, 2015). Unique to CPC-P3, however, is that it is a specific yet comprehensive model with key requirements for class size and site leadership, with data on the program's long-term effects into adulthood. As a school reform model, it implements a system of services as a school-family-university collaboration (Reynolds, Hayakawa, et al., 2017).

And so, to date, the best-studied and most scalable P-3 model is the Child-Parent Center Preschool to 3rd Grade Program. By providing an integrated and well-aligned curriculum — along with family services and supports — during those formative years, CPC-P3 aims to ensure that its students master the foundational academic and social skills that will allow them to succeed in the more content-heavy curriculum of grade 4 and beyond (Takanishi, 2016; Takanishi & Kauerz, 2008; Zigler & Styfco, 1993).

Key elements of the CPC P-3 program

CPC places equal emphasis on preschool, kindergarten, and the early grades — thus, for example, preschool teachers have bachelor's degrees and are compensated on the same salary schedule as K-12 teacher. Similarly, all five levels of the program include the same six essential components:

1. *A collaborative leadership team* run by the head teacher.
2. *Effective learning experiences* provided through small classes (17 students or fewer), engaging instruction, and increased instructional time (often including full-day preschool).
3. *An aligned curriculum* consisting of carefully sequenced lessons that build on prior learning and are supported by teacher collaboration across grades.

4. *Parent involvement and engagement* through a menu-based set of services.
5. *A professional development system* that combines on-site facilitation and online professional learning modules (on topics such as STEM instruction and critical thinking).
6. *Continuity and stability* provided by co-located or close-by centers that provide year-to-year consistency.

Further, at all five levels, the curriculum gives roughly equal time to teacher-directed and child-initiated learning, with teachers regularly documenting these instructional practices in a classroom activity report. So, too, do CPC's outreach services continue throughout the program, including home visits and workshops for caregivers, who can select the activities that interest them from a set of choices informed by an annual needs assessment (Reynolds, Hayakawa, et al., 2016).

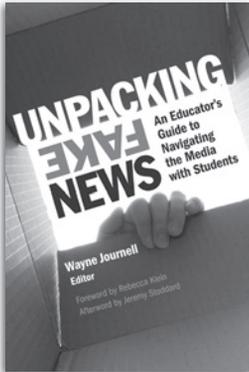
In short, CPC's approach puts great emphasis on continuity throughout the years from preschool to grade 3, creating a predictable learning environment and familiar rules and routines that ease the transition from one grade to the next. Further, to ensure that consistency over time,

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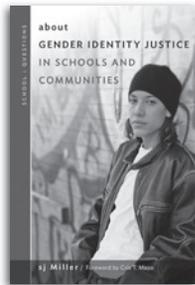
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CPC assigns a parent involvement team, site mentors, and school staff to monitor the curriculum's alignment and share instructional approaches and teaching practices across grades.

Research into CPC's outcomes

The positive effects of CPC are well documented in both the Chicago Longitudinal Study (Reynolds, 2000; Reynolds, Ou, & Temple, 2018; Reynolds, Temple, Ou, et al., 2011; Reynolds, Temple, White, et al. 2011) and studies of the initial implementation of the Midwest CPC expansion (Human Capital Research Collaborative, 2012; Reynolds, Hayakawa, et al., 2016).

Chicago Longitudinal Study

In this study, nearly 1,000 three- and four-year-olds from low-income families who participated in 20 Chicago CPC programs in the mid-1980s were compared to 550 children of the same age who enrolled in the usual early childhood programs in five randomly selected schools. More than 90% of the original sample have remained in the study since that time.

Figure 1 shows the growth in reading achievement on the Iowa Tests of Basic Skills from kindergarten entry (age 5) to 4th grade (age 10) for students who completed CPC's P-3 program, in comparison to students who completed only a CPC preschool and kindergarten program and in

comparison to national norms. Although growth during kindergarten was similar between the two groups (both of which were at or above national norms), the P-3 group experienced greater growth between 1st and 4th grades. This translates to about a six-month gain above and beyond participation in the preschool program alone (Reynolds, Ou, & Temple, 2018; Reynolds & Temple, 1998).

Further, while the average performance of students in the CPC P-3 group did not quite keep pace with the national average, those students did close the 4th-grade gap between themselves and the national norm by about 75%, which is impressive considering their economic disadvantage (Reynolds, 2000).

Note also that because the Chicago Longitudinal Study has followed participants since 1986, it allows researchers to analyze its effects over long spans of time. For example, a recent study of the impact of CPC P-3 on college graduation at age 35 found that participants earned an associate's degree or above at significantly higher rates than non-participants (Reynolds, Ou, & Temple, 2018).

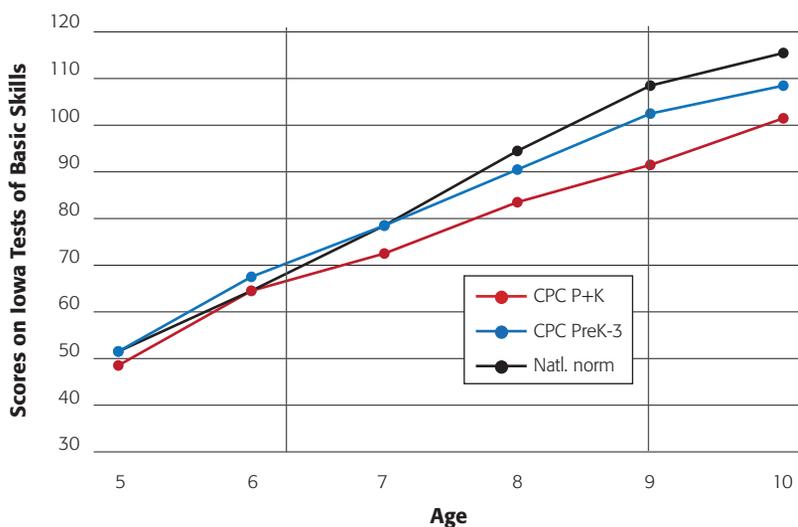
Additional benefits of the program become clear when we examine school mobility: Students who participated in CPC P-3 were significantly less likely to change schools during grades 4-8, and these lower levels of school mobility were associated with significant gains on other indicators of well-being, including academic achievement, high school graduation, and adult job skills (Reynolds, Temple, Ou, et al. 2011; Reynolds, Temple, White, et al., 2011).

Midwest CPC expansion

Impressive findings from the Chicago Longitudinal Study helped lead to the expansion of CPC into Minnesota, Wisconsin, and other parts of Illinois in 2012-13. In turn, this has provided additional opportunities for research into the program's effects.

This second study has followed the progress of 2,364 participants in 26 CPC programs, as well as a comparison group of 1,212 students who enrolled in typical preschool programs that had no connection to later grades (Reynolds et al., 2014). The sample is more geographically and ethnically diverse than the Chicago study — 53% of participants are Black, 32% Hispanic, 7% White, and 5% Asian (compared to 93% Black and 7% Hispanic in Chicago) — and students' progress is being followed into the 3rd grade, with school

FIGURE 1.
Reading growth for CPC groups



The vertical lines show the beginning and end of the CPC school-age program. The groups had similar growth prior to the school-age program and diverged as they got closer to age 10 (4th grade for continuously promoted children). The higher scores for the P-3 group reflect the gain associated with continuing intervention.



achievement as the primary outcome being tracked.

Initial findings are similar to the first study, suggesting that CPC's program model — its six core elements and related services — translate to other contexts beyond Chicago. For example, while students in the Midwest group didn't show quite as dramatic improvements in school-readiness skills as did the Chicago cohort (they outpaced comparable students by the equivalent of four to five months of instruction, whereas the Chicago cohort outpaced peers by six to seven months) their gains were impressive all the same (Reynolds, Hayakawa, et al., 2017; Reynolds, Richardson, et al., 2016).

One difference between the two cohorts is that CPC schools in the Midwest group chose to adopt a full-day preschool model to increase learning time, and this introduces another important research variable. (The Chicago program offers full-day preschool as well but not during the original CLS study.) To date, the data show that attending both part-day and full-day CPC programs are associated with significantly higher school-readiness skills (in comparison to attending other programs). Further, full-day enrollment is associated with significantly higher school-readiness skills (three- to four-month gain), higher average daily attendance (five percentage points), and lower rates of chronic absences (45% reduction).

Increasing and sustaining gains

A considerable body of evidence shows that the CPC model effectively bridges the divide between early education and school-age services (Reynolds, Richardson et al., 2016; Takanishi, 2016; Zigler & Styfco, 1993). Over five decades, it has yielded strong benefits in the areas of school readiness, achievement, and long-term well-being. Further, the model has been scaled up effectively in three states.

These findings can and should provide a foundation for increased investment in scale-up and expansion efforts, especially in communities and schools serving large proportions of at-risk children. The elements important to long-term and sustained effects — including low child-teacher ratios, intensive instruction, and family services — are present in CPC but appear to be less prevalent in state prekindergarten and other P-3 programs (Reynolds et al., 2016; Reynolds et al., 2017).

Two recent U.S. policy changes can help increase the scalability of CPC's P-3 model. First, the Every Student Succeeds Act (ESSA) of 2015 requires states and school districts to submit school improvement plans that reflect evidence-based practices. These plans provide an opportunity to incorporate integrative P-3 models to address

achievement gaps and sustain learning gains. Enhanced parent involvement and improved school climate, which also are ESSA requirements, can also bolster P-3 programs and practices. Second, the availability of funds for Pay for Success initiatives also provides an important opportunity for expansion.

At the state and district levels, the alignment of standards, assessments, and professional development for principals and staff are key to promoting continuity and integration of services across the continuum of early education. Many states, including Minnesota, Washington, New Jersey, and North Carolina, have accelerated P-3 and alignment across grades to enhance learning (Takanishi, 2016), but resources for professional development and capacity building will be critical to further improvement, and CPC's evidence-based framework can play an important role in this respect.

At the school and classroom levels, many structural and process elements have been shown to increase learning, including teacher background and education, positive teacher-child relationships, engaged instruction, school climate, and small classes (Manning et al., 2017). Professional development and support for teachers and staff also make positive contributions to learning. Family and community engagement, as well as principal leadership, are also essential to building capacity and support for a sustained continuum of learning across grades.

Nevertheless, three limitations in the early learning and P-3 field should be addressed to ensure continued progress. First, extensive longitudinal data are needed to test key questions and evaluate differing models, but few such ongoing studies are underway. Second, the evidence base has not been tested at scale. Although CPC has expanded the program beyond Chicago and to more heterogeneous populations, wide-scale implementation has not yet occurred. Future studies will be needed to examine the program's effectiveness for English language learners and other underrepresented groups. In addition, studies of the differential effects of program elements are needed to help tailor the model to new settings. Finally, scale-up and sustainability efforts need adequate levels of commitment and financial support to be effective. This requires organizational support from school districts and states and adequate public funding for qualified staff and resources (Cannon et al., 2017; Manning et al., 2017).

Key principles of school improvement developed in the 1970s have rarely been applied to early learning (Reynolds, Hayakawa, et al., 2017; Zigler & Styfco, 1993). Among these are findings related to principal leadership, school climate, and engaged learning

communities (Bryk et al., 2010; Rury, 2016; Takaniski & Kauerz, 2008). But all of these approaches are present in CPC's P-3 model. My hope is that the new opportunities under ESSA, as well as Pay for Success funding, will increase interest in this research-supported approach. And increased interest will allow for the collection of even more data on what programs for young children are the most likely to have long-term benefits. ◀

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“Zebra! That was so predictable.”

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