

Child-Parent Center Preschool to 3rd Grade Program:
A Partnership-Based School Reform Model to Promote Well-Being

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Abstract

I describe the development, implementation, and evaluation of a comprehensive preschool to 3rd grade prevention program for the goals of sustaining services at a large scale. The Child-Parent Center Expansion is a multi-level collaborative school reform model designed to improve school achievement and parental involvement. By increasing the dosage, coordination, and comprehensiveness of services, the program is expected to enhance the transition to school and promote more enduring effects on well-being in multiple domains. This is illustrated with evidence from two longitudinal studies how the guiding principles of shared ownership, committed resources, and progress monitoring for improvement promote scaling efforts. Participation in the program expansion is linked to greater school readiness skills, attendance, and parental involvement, which dovetails with prior evidence. The implementation system of partners and further expansion using “Pay for Success” financing shows the feasibility of scaling the program while maintaining effectiveness.

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Preventive interventions early in life can enhance many domains of well-being and reduce later costs of remediation and treatment (Braveman & Gottlieb, 2014; O'Connell, Boat, & Warner, 2009). Despite the accumulated evidence, however, the impacts of early childhood programs vary substantially in magnitude, consistency, and duration. Differences in program quality, teaching practices, timing and duration, and levels of school and family support are contributing factors (Camilli et al., 2010; Reynolds & Temple, 2008). Even if large and sustained effects are reliably documented, these programs are rarely scaled to entire populations, further limiting the potential impact in promoting child well-being. Less than five percent of evaluated prevention programs are ever implemented at scale (O'Connell et al., 2009). Major reasons for this lack of scale-up include the absence of a shared vision, low commitment by organizational leadership, and insufficient financial resources.

To increase the scalability of prevention programs and their potential for sustainability, collaborative models of school, family, and university engagement are needed. In this article we review the Midwest Child-Parent Center Preschool to 3rd Grade Program (CPC-P3) as an approach for scaling and sustaining an evidence-based preventive intervention. We describe key elements, short- and longer-term impacts, and share lessons for implementation at the neighborhood, district, and higher levels of scale. Supported by an Investing in Innovation Grant from the U. S. Department of Education, CPC-P3 provides comprehensive education and family support services to children and parents in six Illinois, Minnesota, and Wisconsin school districts. Designed to accelerate achievement and parent involvement in schools, districts, and regions (HCRC, 2012), CPC-P3 is conceptualized as a school reform model to engage school leaders and families as program owners, thereby facilitating scale up. Although previous studies of high quality preschool programs show strong evidence of cost-effectiveness (Karoly & Auger, 2016; Reynolds et al., 2011), scale up has not occurred.

In this paper, I (a) describe the principles of school-family-university collaboration that can strengthen the capacity for scaling and sustainability, (b) review the CPC school reform model, its development and strategies, and how key elements overcome limitations of previous efforts, (c) discuss implementation examples and lessons for strengthening impacts, (d) describe program impacts, and (e) summarize a financing approach to scaling called “Pay for Success.”

Core Principles of School-Family-University Collaboration

As a school reform model, CPC-P3 implements a set of core elements in elementary-school or center-based sites to enhance student learning. CPC services through third grade can be completely co-located or as a partnership between centers and schools. The framework is based on a school-family-university collaboration model which emphasizes three major principles: (a) shared ownership, (b) committed resources, and (c) progress monitoring for improvement.

In shared ownership, the major partners have an equal responsibility to plan, implement, manage, and improve the program. Rather than the usual approach in which an externally-developed program (e.g., university-based) is adopted by an organization without modification, a shared ownership model distributes the responsibility to ensure effective implementation, thereby strengthening the commitment from all partners to work together in achieving common goals. This is consistent with emerging collaborative stakeholder models of research (Frank, Basch, & Selby, 2014). Shared ownership provides a foundation of trust necessary for scaling and sustaining programs. Families also have an active role by providing input and ideas about strategies to implement, and working collaboratively with teachers and staff to create and maintain a strong learning environment.

In committed resources, each partner makes key investments that are necessary for effective implementation. Resources include time, financial capital, and physical space. Although resources denote the “stake” that each partner has in an initiative, the increased commitment that goes along with investment can be a springboard to scale up and sustainability.

Alternative financing options that are used, such as matching grants, blended funding, and leveraging resources among institutions, increase the capacity and feasibility of further expansion. Given shared ownership, staff collaboration in fulfilling roles and responsibilities is further enhanced, which also increases the efficiency of available resources.

Progress monitoring for improvement addresses how well programs are meeting their short- and intermediate-term goals. This on-going formative evaluation is essential for continuous improvement. Measuring and reporting the extent of implementation fidelity enables timely adjustment of program strategies and activities to the needs of participants and partners alike. This is especially important in comprehensive programs in which responses to intervention have large variability. The use of data and evidence, and sharing these among partners, reinforce the importance of meeting milestones and standards. The tools that are routinized also help ensure that the quality of the program can be maintained as expansion increases.

Midwest Child-Parent Center Expansion Program

The CPC program began in 1967 in inner-city Chicago. This was made possible by federal Title I funding to school districts. The Chicago Public School District was the first to use these funds for preschool and thereby established CPC as the second oldest (after Head Start) federally-funded preschool. Although CPC began as a comprehensive preschool program, children received continuing services in kindergarten and the early grades the following year, resulting in the P-3 program that it is today under the Midwest expansion. The program was designed as a response to three major problems facing Chicago's west side neighborhoods: low rates of attendance, family disengagement with schools, and low student achievement.

The conceptual foundations of the program derive from ecological, risk/protection, and human capital theories (Bronfenbrenner, 1989; Rutter & Rutter, 1993), in which well-being is a product of proximal and distal influences at multiple levels of contexts (individual, family, school, community) experienced during the entire early childhood period (ages 3 to 9). The

program's focus on the quality and continuity of learning environments indicates that optimal development can be promoted through enriched experiences and settings co-created by children, families, and schools. Due to discontinuities in instructional support and philosophy between early childhood and school age settings, improvements in the integration and alignment of services during this important ecological transition can improve children's levels of readiness for kindergarten that are sustained over the elementary grades (Takanishi & Kauerz, 2008).

In the current expansion of the model, each CPC-P3 site provides a dynamic support system over P-3 (see Appendix). Comprehensive education and family support services are provided. Under the direction of a leadership team at each site and in collaboration with the Principal, CPC-P3 enhances school readiness skills, increases early school achievement, and promotes parent involvement. It is a stand-alone school or center in which all children receive services. Sites implement a set of six core elements following the program guidelines and requirements specified in the manual (HCRC, 2012; Reynolds et al., 2016). All teachers, staff, and children for these designated grades participate as well as staff hired to reduce class sizes, and provide program leadership, professional development, and family engagement.

The CPC's Head Teacher (HT) or Director works under the leadership of the elementary school Principal. HTs are the administrative leads for the program and manage implementation, provide coaching and supervision to staff, and help establish expectations of performance. The Parent Resource Teacher (PRT) directs the CPC's parent resource room and family services, and outreach activities are organized by the School-Community Representative (SCR). Health services are coordinated between the preschool and elementary grades. Liaisons work with the HT and PRT to provide alignment of curriculum and parent involvement activities.

After preschool participation at ages 3 and/or 4 in small classes with student-teacher ratios of 17:2, the K–3rd component provides reduced class sizes (maximum of 25), teacher aides for each class, continued parent involvement opportunities, and enriched classroom

environments for strengthening language and literacy, math, science, and social-emotional skills. Site mentors from HCRC also work with leadership and staff to ensure effective implementation. Curricular and performance monitoring are integrated within a robust professional development system of school facilitators and online supports.

In order to enhance shared ownership and school-wide integration of P-3 services, the Midwest CPC expansion conceptualizes the program as a school reform model led by the principal. Figure 1 shows the continuity system of implementation and Figure 2 the organizational structure. Children's learning is supported by the family within the context of the school and community.

The Human Capital Research Collaborative (HCRC) is the organization runs the Midwest expansion. It is an inter-college center dedicated to conducting and disseminating intervention and policy research to promote well-being from early childhood to young adulthood. HCRC includes a diverse team of faculty and students from child development, education, public policy and related fields. External partners, such as the Erikson Institute, SRI International, and Illinois State University, worked with HCRC to implement the six core elements of the program and sustain services to new cohorts. The system of services is mutually beneficial to all partners and builds shared ownership, committed resources, and progress monitoring for improvement.

CPC-P3 School Reform Focus. Given the historic focus on specific elements of reform, including curriculum enhancement and small classes (Reynolds, Magnuson, & Ou, 2010), newer comprehensive approaches for promoting effective school transitions may not only have larger effects on child development but also provide a greater likelihood that gains will be sustained. To date, key principles of effective school improvement developed in the 1970s have not been successfully utilized in early childhood programs and their follow-on efforts. Among these are principal leadership, school climate and high expectations of performance, and engaged learning communities (Rury, 2016; Takanishi & Kauerz, 2008). These principles have been incorporated

in school reform with positive results, most notably the 5 Essentials framework of effective leaders, ambitious instruction, involved families, supportive environment, and collaborative teachers (Bryk, Sebring, Easton, 2010). Although developed independently within the context of early childhood programs, the six core elements of CPC are consistent with the 5 Essentials, and they provide a strategy of school improvement that can promote well-being and achievement.

Insert Figures 1 and 2

Figure 1 shows the continuity inherent in CPC-P3 in its equal emphasis on preschool, kindergarten, and each early grade. Preschool or early education provides the foundation and the next few grades build on this to promote achievement and well-being for children and parents.

As shown in Figures 1 and 2, the core CPC-P3 elements are described as follows:

1. *Collaborative leadership team*: A leadership team is run by the HT in collaboration with the principal. The HT ensures that all elements are effectively implemented. The PRT, SCR, and other staff work together to support the system.

2. *Effective learning experiences*. Ensure mastery in core learning domains (e.g., literacy and language, math, science, socio-emotional) through small classes, diverse and engaged instruction, and increased time through full-day preschool and kindergarten classes. For example, preschool and K-3 classes are limited to 17 and 25, respectively, with assistants in each.

3. *Aligned curriculum*. Organize a sequence of evidence-based curricula and instructional practices that address multiple domains of child development within a balanced, activity based approach. A curriculum alignment plan is developed with the principal is and updated annually.

4. *Parent involvement and engagement*: Comprehensive menu-based services are led by the PRT and SCR including multifaceted activities and opportunities to engage families.

5. *Professional development system*: Online professional development and on-site follow-up support is integrated for classroom and program applications. Among the topics covered by the modules are oral language, thinking skills, movement, inquiry, and socio-emotional learning.

6. *Continuity and stability*: Preschool to 3rd grade services, through co-located or close-by centers, incorporate comprehensive service delivery and year-to-year consistency for children and families. Instructional and family support services are integrated across grades.

The strength of the model lies in the synergy of all six elements working together, with across-element coordination a strong design feature. These are key to producing long-term impacts on children's educational progress, socio-emotional development, and well-being.

Table 1 provides a description of how each of the program elements contributes to the three core principles of family-school-university-collaboration. The collaborative leadership team of the principal and HT help establish the learning environment of shared ownership among the partners, which provides opportunities for CPC staff to serve children and families in all facets of the program. The principal's increased commitment to the program, including participation in institutes and decisions to increase school resources to P-3, is a significant advance from the original program. This results in not only greater implementation fidelity but increased resource investments by the partners, who see the benefits of improved learning environment. The greater attention to progress monitoring by the leadership team increases fidelity to program principles and accountability.

Other program elements contribute in similar ways to the collaboration and shared ownership, resource commitments, and progress monitoring, and provide a foundation for scaling. In effective learning experiences, for example, the implementation of full-day preschool in small classes emphasizes a balance of teacher-directed and child-initiated instruction for promoting strong learning gains (Reynolds et al., in press). This is complemented by increased alignment of instruction across grades, in which a curriculum alignment plan is developed and grade level meetings and professional development is frequently observed. As a consequence, sustained gains of early education are more likely to occur.

Insert Table 1 here

Implementation Examples for Strengthening Impacts

Although CPC has a distinguished history, expansion beyond Chicago has been a major need. This is addressed by the Midwest expansion. At the time of the expansion in 2012, only the preschool component of the program was being implemented in just 10 of the original sites. On the basis of the accumulated evidence, the Chicago district and others expressed interest in not only re-establishing the P-3 elements but enhancing the program so that it could be effective in a variety of community contexts. Working with Chicago's leadership and others, the HCRC team developed a comprehensive plan that integrated six core elements that was implemented under a school reform model consistent with the U. S. Department of Education's Office of Innovation.

Program elements were modified and strengthened to address large demographic changes at both the societal level (e.g., increasing numbers of single-parent households and working mothers of young children) and program level (e.g., more diverse populations of children and families, new geographic locations) (see also Appendix for requirements).

Children's participation in CPC-P3 is expected to promote enduring positive impacts for three major reasons: (a) a longer duration of participation can produce greater and more foundational changes in school achievement and performance; (b) the program encourages stability and predictability in learning environments; and (c) it is implemented during the transition to school, a critical phase of development in which continuing services can accelerate learning and reduce the likelihood of drop-off effects (Reynolds, Magnuson, & Ou 2010). Studies of preschool impact show that the length of gains is a function of program quality, magnitude of initial effect, timing and duration, and subsequent school quality (Camilli et al., 2010; Currie & Thomas, 2000; Englund et al., 2014). We describe three examples of how CPC-P3 is strengthening impacts in ways that are scalable and that overcome earlier limitations.

Collaborative Leadership and Effective Learning

As a school reform model, the program has a collaborative leadership structure in which the principal and staff establish a positive learning environment for students and families.

Principals develop a CPC leadership team and support key program elements through matching funding (e.g., open full-day preschool, hire teaching assistants and outreach staff), and facilitate cross-grade curriculum and parent involvement strategies (see Appendix).

During the planning stages, the HCRC team worked with each principal to develop an implementation plan for a smooth roll-out in each school. One of the main recommendations by principals and head teachers was to open full-day preschool classrooms in the first year (fall 2012). This was based in large part on feedback from parents that they wanted their children in full-day preschool due to the incompatibility between their work schedules (or other obligations) and the school's existing part-day program. The added challenge of coordinating care and education for the other part of the day was a major concern. Some parents went so far as to indicate that they would not enroll their child in the center unless there was a full-day option. In addition to parents' demands, principals also believed full-day preschool would improve school readiness skills and the successful transition to the kindergarten and the elementary grades.

Full-day preschool, however, was not part of the CPC expansion design and consequently required significant changes to the program. To address this issue, HCRC and the principals established a solution by which if the school contributed at least 25% of the added cost for opening a full-day classroom, HCRC would match the remainder. Eleven of the 16 schools agreed to do this with the contributions ranging from 25% to 100%. HCRC reallocated funding to cover these costs. Twenty-three full-day classrooms were opened in fall 2012. This was the first time in these schools that principals directly funded preschool classrooms out of their own budgets. This process also supported key elements of shared ownership and committed resources (see Table 1). Our partnership with schools in opening full-day preschool classrooms led to the

district financially sustaining and expanding them the following year. A second district also opened full-day classes. In addition, CPC leadership positions in each school were sustained.

Menu-based System of Parent Involvement and Engagement

While the importance of parent involvement in children's school success has been well documented (Hayakawa et al., 2013; Jeynes, 2007), daily schedules and demands, school climate, and the lack of necessary school resources often prevent parents from fully engaging in family support activities (e.g., workshops, home visits). Through collaborations with principals, school staff, family members, and the community, we developed a menu-based system of parent involvement that overcomes these barriers by offering a comprehensive program tailored to the educational and career needs of families. Parents choose among a range of events activities in which to participate and agree to be involved at least 2.5 hours per week.

The goals of family engagement are to (a) implement a menu-based program that addresses family needs while strengthening the school-family partnership, (b) sustain parent involvement in children's education, and (c) enhance support for educational attainment, career opportunities, and personal development through the following topics and activities: a supportive home environment, healthy child and family development, parent education, career, and personal development. Each site has a parent resource room to host events and serve as a center for parents to visit throughout the day. The PRT works collaboratively with the HT and the school principal to engage families throughout the school-based parent program (see also Table 1).

School-family-community relationships are especially important in the CPC model. The role of the SCR is to help lead these efforts. Usually residing in the community, this para-professional staff member recruits families, informs them of programming, works toward increasing and maintaining child and parent attendance, and conducts home visits. These home visits are an opportunity to foster positive school and community relations by better

understanding the obstacles impacting a family's ability to participate in events. Given the need for home visits and monitoring attendance, SCRs became full-time positions in the first year.

A needs assessment is conducted at the beginning of the year to avoid myopically planning events that do not match the identified needs of families. The available resources in the community are assessed through asset mapping. These are integral components of the Parent Involvement Plan. In collaboration, the HTs, PRTs and Parent Involvement Liaisons (K–3rd grade) develop activities at each center to promote involvement and engagement. Parent involvement logs (an electronic documentation system) are maintained for progress monitoring. Given the needs assessment results and the increased time of the SCR, parent involvement logs showed that CPC families in year 1 participated in an average of 12.4 school events compared to 2.7 for the comparison group. This difference was maintained the following year.

Family support behavior is one of five mechanisms through which CPC participation affects well-being (Reynolds, 2012). Benefits will accrue to the extent that participation enhances parenting skills, attitudes and expectations, and involvement in children's education (Hayakawa et al., 2013; Ou & Reynolds, 2010). Parent involvement in school and parent expectations for achievement have been found to improve well-being by increasing children's learning time, enhancing children's motivation and school commitment, and increasing expectations for attainment and success (Hayakawa et al., 2013). They also improve social support and parenting skills, which reduce social isolation and the risk of child maltreatment. Meta-analyses of family and two-generation interventions as well as parenting behaviors (Jeynes, 2007; Sweet & Applebaum, 2004) show that involvement and monitoring link to higher achievement and delinquency prevention. The menu system of involvement in the Midwest expansion enables the program to engage more parents (see Appendix).

Progress Monitoring for Improving Instruction

Monitoring is key to ensuring that learning is on track. Program fidelity is a major component of assessing progress. Based on site visits, interviews, and a review data collected for each element, we assessed each school's fidelity of implementation in meeting requirements. The scale for each element and overall ranged from 1 (few requirements met) to 5 (almost all). The overall average rating of implementation fidelity for year 1 across the six program elements was 3.9 or moderately high. The highest was continuity and stability (4.2) and the lowest aligned curriculum (3.3). Parent involvement was in the moderate range (3.9). Across the six elements, 75 percent of sites met the moderate-to-high fidelity standard defined as a rating of 3.5 or higher. In year 2, the overall fidelity rating was 4 with collaborative leadership, parent involvement, and professional development rated highest.

CPC classrooms are required to utilize a variety of instructional strategies to maintain a balance of teacher-directed and child-initiated activities at a ratio no higher than 65/35. The Classroom Activity Report (CAR) was developed by HCRC to monitor classroom progress in meeting this requirement. This tool documents the organization and implementation of instructional activities (i.e., percentage of time during the day devoted to math, language and literacy activities, science, and social emotional activities). Classroom teachers complete the CAR on a regular basis. HCRC staff review the submitted CARs and provided feedback. This promotes a collaborative approach to program fidelity and helps schools identify gaps and design new instructional strategies. We have found that learning gains in preschool and kindergarten are linked to the degree to which child-initiated instruction activities are implemented.

Table 2 provides an example of how the CAR can be used as a progress monitoring tool for improving learning outcomes. Although the distribution of instructional time was similar in full-day and part-day classes, the number of hours of total instructional time was nearly 2.5 times greater in full-day classes (984 vs. 417). This increase was proportionate across instructional domains and activities. For example, the number of hours in child-initiated literacy activities

increased to 225 in full-day from 101 in part-day. These data were used by schools and the district to determine if and how the additional hours were productively spent. One district asked that full-day classrooms be added, while another planned to open them the following year.

Based in part on the increased instructional time and the content distribution documented by CAR, one district began to offer full-day preschool school and strengthened their curriculum alignment between preschool and the early grades. Teacher collaboration across grades also increased. The CAR, along with an observational assessment called the Classroom Learning Activities Checklist, provides valuable information for improving the quality of experiences in the classroom. Independent observations of program and comparison sites on this assessment indicated that 76% of CPC preschool classrooms were rated moderately high to high in task orientation and engagement, a key program focus. 43 percent of comparison classrooms had this rating. The balance of instruction was consistent with program principles.

Insert Table 2 here

CPC Impacts Over Time

The positive effects of the CPC program has been documented in many studies. Findings from the Chicago Longitudinal Study (CLS; Reynolds, 2012), which has tracked a CPC and comparison cohort born in 1979-1980, has provided the most extensive evidence and it is the basis of the Midwest CPC expansion. In a quasi-experimental design, 989 3- and 4-year-olds from low-income families who participated in 20 CPCs 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. A broad range of measures of well-being have been collected over three decades with over 90% sample recovery. These include school readiness and achievement, remedial education, educational attainment, involvement in the criminal justice system, and economic well-being. Program participation was from P-3 and followed the CPC model elements. Study characteristics and findings are described in Table 3.

Insert Table 3 here

Based on a variety of regression analysis, CPC preschool participation was found to be associated with higher school readiness, higher reading and math achievement, reduced grade retention, and reduced special education placement (Reynolds, 2012). Gains on the Iowa Test of Basic Skills were found from kindergarten through age 15. By age 22, the CPC preschool program is found to be associated with a higher rate of high school completion and a lower rate of juvenile arrest (Ou & Reynolds, 2006; Reynolds, Temple, Robertson, & Mann, 2001). Children participating in the P-3 program were found to have higher academic achievement when compared with children receiving only the preschool or follow-on programs (Conrad & Eash, 1983). Extended CPC program participation (4 or more years of services) was associated with lower rates of school remedial services and delinquency (Reynolds et al., 2001).

The Midwest CPC expansion assesses the impact and generalizability of the program model. Initial findings are similar to those in the CLS and indicate the benefits of the six core elements and services (see also Table 1). In the expansion project, the CPC cohort included 2,364 CPC participants in 26 sites and 1,212 comparison participants from propensity-score matched schools in four districts of various sizes who enrolled in the usual preschool with no coordinated school-age programs (Reynolds et al., 2014; in press). The groups are being followed to third grade with school achievement and parent involvement as the primary outcomes. The sample is more geographically and ethnically diverse compared to the CLS, which was in inner-city Chicago with over 90% of children African American. In the Midwest CPC, 53% are African American with 32% Hispanic, 7% White, and 5% Asian.

Controlling for baseline performance and child and family background characteristics, the mean effect size for school readiness skills at the end of preschool for Midwest CPC participants in Chicago (based on the Teaching Strategies Gold total score) and Saint Paul (based on PALS alphabet recognition) was .47 standard deviations (Table 3). The effect size for school

readiness in the CLS was .63 standard deviations. Most of the control group in the CLS, however, was not enrolled in preschool, whereas in the Midwest CPC they were enrolled in state/district Prek or Head Start. Effects for parent involvement in school (teacher ratings) in the Midwest CPC was .33 standard deviations compared to .46 in the earlier study. These consistent effects indicate the continued feasibility and effectiveness of the program across contexts.

Finally, because full-day preschool was introduced in the CPC expansion to increase learning time, we found that this participation (compared to part-day) was associated with significantly higher school readiness skills in language, math, and socio-emotional development (ES = .33), higher average daily attendance (ES = .30), and lower rates of chronic absences (ES = -.45; Reynolds et al., 2014). Nevertheless, both part-day and full-day CPC were associated with significantly higher school readiness skills than comparison participants in the usual part-day preschool (ESs = .32 to .71; Table 3). The impact of dosage in the CLS was similar to the expansion as the 2-year group in part-day classes had greater school readiness skills than the 1-year group, but both significantly outperformed the matched comparison (Reynolds et al., 2011).

The Midwest expansion findings led to an expansion of full-day preschool the following year, the introduction of full-day in another district, and plans to do so in a third district. Overall, the findings from both studies show the benefits of the CPC program and the advantages of the principles of shared ownership, committed resources, and progress monitoring.

Scaling and Financing through Pay for Success

Given the low rate of success in scaling evidence-based programs, new approaches to financing have been developed. One of the most prominent is called Social Impact Bonds or “Pay for Success.” In a Pay for Success (PFS) approach, mission investors consisting of private partners and/or philanthropic organizations loan funds to public sector jurisdictions (e.g., school districts, counties) to expand evidence-based or very promising programs (GAO, 2015; Temple & Reynolds, 2015). To the extent that these services are found to generate cost savings to the

public sector, a state or local government is obligated to make payments to the private investors based on the estimated cost savings. Economic evaluation is crucial in both determining the suitability of intervention programs to be financed in this manner and in determining the magnitude of the “success” payments. This approach can promote a shift from costly treatment-based interventions consuming ever larger portions of public budgets to proactive, preventive interventions that save more dollars than they cost.

PFS illustrates the role of shared ownership and committed resources in program expansion. Through a PFS initiative with the City of Chicago, the Midwest CPC has begun further expansion in the Chicago Public Schools. In this financing structure, Goldman Sachs, Northern Trust, and the J.B. & M.K. Pritzker Family Foundation provide \$17 million in loans for the operational costs of new classrooms, which will serve an additional 2,600 children over the next four years (HCRC, 2014). The City will repay the loans only if the program improves outcomes as determined by an independent evaluation.

In the planning phase, the city engaged HCRC to help develop the initiative. The CPC program under the Midwest expansion was selected for two major reasons. First, expansion of CPC already under way was showing strong initial findings and school principals and the district were committed to the program. This was demonstrated by their increased funding and growing collaboration with the university. Second, the program had a long track record of effectiveness in promoting student success and in reducing the need for remediation. Two cost-benefit analyses documented that at an average cost per child of \$8,512 (2012) for preschool, benefits exceed costs by a factor of 7 to 10 (Reynolds et al., 2002; 2011). P-3 services showed similar returns.

A large percentage of the economic return was savings in special education, juvenile court, and child welfare. For example, the annual cost per child of special education services is over \$15,000 above and beyond regular instruction. The majority of this cost is covered by the

school district. Given the direct relationship between the city and the school district, the focus of the PFS was special education savings.

The CPC PFS initiative began implementation in February 2015 for an initial cohort of over 350 children in six sites. Five of them are existing schools in the CPC expansion. The first year evaluation findings for school readiness will be reported in spring 2016. The annual “success” payments made by the district and city will be \$2,900 for each child who is school-ready for kindergarten, \$750 for each child who is literacy-proficient in grade 3, and \$9,100 for each year a CPC participant avoids special education as compared to a matched control group without CPC services. Rates of special education placement will be tracked through high school. School readiness for each 4-year-old is defined as the percentage of children performing at or above the national average at the end of the year on five of six subscales of the Teaching Strategies Gold Assessment System (Lambert, Kim, & Burts, 2013). The payment structure is based on the long-term evidence that CPC improves school achievement and reduces the need for special education by up to 41% or nearly a year of services (Reynolds et al., 2002).

Although the major advantage of PFS is the capacity for program expansion when existing public resources are not available, two limitations are notable. First, the success of the initiative is largely dependent on the selected program. Those having a track record, such as CPC or others with existing evidence of economic returns, are most reassuring to investors. Unfortunately, most programs have limited evidence of economic returns (O’Connell et al., 2009). Second, as a new type of financing, the success metrics of PFS so far rest on one jurisdiction of savings—special education or the justice system. Comprehensive programs having many sources of savings require multi-jurisdiction contracts. These are very challenging to complete and have not been completed to date. In CPC, for example, there are justice system and child welfare savings, but because they are administered through counties, a longer-term

process of development and coordination was needed. This was not feasible for the city or the funders. Consequently, PFS contracts may underestimate the savings that are possible.

Overall, PFS has helped scale CPC and can facilitate similar efforts in other districts. It provides a new avenue for leveraging resources in evidence-based programs. Private investment contributed to an initiative can also be combined with public resources to create a public-private approach to scaling, which then can be modified over time as public resources increase.

Conclusion

The expansion of Midwest CPC have relied on conceptualization of the program as a school reform model within a collaborative structure of partners. Through shared ownership, committed resources, and progress monitoring for improvement, the program is more likely to be scaled effectively and sustained in ways that continually produce benefits to children and families in school success and engaged parenting. Successful implementation of CPC has yielded strong benefits so far in increasing school readiness skills, improving attendance, and in strengthening parental involvement in children's education. These positive benefits have led to further scale up through an innovative Pay for Success initiative in Chicago that will substantially increase enrollment in the coming years. Cost savings in special education and remediation are expected to be consistent with prior studies.

Buy-in from partners at every level of the school community—children and families, to school administration, staff, and local groups--is critical to successful CPC expansion and prevention programs in general (Takanishi & Kauerz, 2008). Partners as well as stakeholders from the larger communities in which schools are embedded play important roles in “strengthen[ing] the social capital available to children” (Boyd & Crowson, 1993, p. 36). This shared ownership reflects that program decisions should result from a reciprocal dialogue among engaged partners. This approach will help ensure that progress towards scaling preventive interventions and social programs continues to occur and can reap clear social benefits.

References

- Boyd, W. L., & Crowson, R. L. (1993). Coordinated services for children: Designing arks for storms and seas unknown. *American Journal of Education, 101*, 140-179.
- Braveman, P, Gottlieb, L. (2014). The social determinants of health: It's time to consider the causes of the causes. *Public Health Reports, 129* (Suppl. 2), 19-31.
- Bronfenbrenner, U. (1989). Ecological systems theory. *Annals of Child Development, 6*, 187-249.
- Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago*. Chicago: University of Chicago Press.
- Camilli, G., Vargas, S., Ryan, S., & Barnett, W. S. (2010). Meta-analysis of the effects of early education interventions on cognitive and social development. *Teachers College Record, 112* (3), 579-620.
- Conrad, K.J., & Eash, M.J. (1983). Measuring implementation and multiple outcomes in a Child-Parent Center compensatory education program. *American Educational Research Journal, 20*, 221-236.
- Currie, J., & Thomas, D. (2000). School quality and the longer-term effects of Head Start. *The Journal of Human Resources, 35*(4), 755-774.
- Englund, M. M., White, B., Reynolds, A. J., Schweinhart, L. J. Campbell, F. A. (2014). Health outcomes of early childhood interventions: A 3-study analysis. In A. J. Reynolds et al., (Eds.), *Health and education in early childhood: Predictors, interventions, and policies*. New York: Cambridge.
- Frank, L., Basch, E., & Selby, J. V. (2014). The PCORI perspective on patient-centered outcomes research. *Journal of the American Medical Association, 312*(15), 1513-1514.

- Government Accountability Office. (2015). *Pay for Success: Collaboration among federal agencies would be helpful as governments explore new financing mechanisms* (GAO-15-646). Washington: Author.
- Hayakawa, M., Englund, M. M., Warner-Richter, M. N., & Reynolds, A. J. (2013). The longitudinal process of early parent involvement on student achievement: A path analysis. *National Head Start Association Dialog, 16*, 103-126.
- Human Capital Research Collaborative. (2012). *Program requirement and guidelines, Midwest Expansion of the Child-Parent Center Program, Preschool to Third Grade*. Minneapolis: Human Capital Research Collaborative. <http://humancapitalrc.org/midwestcpc>.
- Human Capital Research Collaborative. (2014). Chicago's social impact bonds for Child-Parent Centers expands a proven school reform model. Minneapolis: University of Minnesota. https://humancapitalrc.org/~/_media/files/news/sib_chicago_summary.pdf?la=en.
- Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement. *Urban Education, 41*(1), 82-110.
- Karoly, L. A., & Auger, A. (2016). *Informing investments in preschool quality and access in Cincinnati: Evidence of impacts and economic returns from national, state, and local preschool programs*. Santa Monica, CA: RAND. Doi:10.7249/RR1461.
- Lambert, R., Kim, D., & Burts, D. (2013). *Technical manual for the Teaching Strategies Gold Assessment System (2nd ed)*. CEME Technical Report. Center for Educational Measurement & Evaluation, Charlotte: University of North Carolina.
- O'Connell, M. E, Boat, T., & Warner, K. E. (Eds.). (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. National Research Council. Washington, DC: National Academy Press.
- Ou, S. & Reynolds, A. J. (2006). School-age services: Programs that extend the benefits of early care and education services. In C. J. Groark et al. (Eds.), *Evidence-based programs*,

- practices, and policies for early childhood care and education* (pp.114-134). Thousand Oaks, CA: Corwin Press.
- Reynolds, A. J. (2012). *Success in early intervention: The Chicago Child-Parent Centers*. Lincoln: University of Nebraska Press (Reprinted from 2000).
- Reynolds A. J., Hayakawa M, Candee, A. J., Englund, M. M. (2016). *CPC P-3 Program Manual: Child-Parent Center Preschool-3rd Grade Program*. Minneapolis: University of Minnesota.
- Reynolds, A. J., Magnuson, K. & Ou, S. (2010). PK-3 programs and practices: A review of research. *Children and Youth Services Review*, 32, 1121-1131.
- Reynolds A. J., Richardson B. A., Hayakawa M., et al. (2014). Association of a full-day versus part-day preschool intervention with school readiness, attendance, and parent involvement. *JAMA*, 312(20): 2126-2134.
- Reynolds A. J, Richardson BA, Hayakawa M, et al. eAppendix B: Validity in Early Childhood Assessment. Association of full-day versus part-day preschool intervention with school readiness, attendance, and parent involvement. doi:10.1001/jama.2014.15376
- Reynolds, A. J., Richardson, B. A., Hayakawa, M., et al. (in press). Early childhood intervention and school readiness: Expansion of an evidence-based program. *Pediatrics*.
- Reynolds, A. J. & Temple, J. A. (2008). Cost-effective early childhood development programs from preschool through third grade, *Annual Review of Clinical Psychology*, 4, 109-139.
- Reynolds, A. J., Temple, J. A., Ou, S. Arteaga, I. A., & White, B. A. B. (2011). School-based early childhood education and age-28 well-being: effects by timing, dosage, and subgroups. *Science*, 333, July 15, 360-364.
- Reynolds, A. J., Temple, J. A., Ou, S. R., Robertson, D. L., Mersky, J. P., Topitzes, J. W., & Niles, M. D. (2007). Effects of a school-based, early childhood intervention on adult

- health and well being: A 19-Year follow-up of low-income families. *Archives of Pediatrics & Adolescent Medicine*. 161(8), 730-739.
- Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long-term Effects of an Early Childhood Intervention on Educational Achievement and Juvenile Arrest: A 15-Year Follow-up of Low-Income Children in Public Schools. *Journal of American Medical Association*, 285, 2339-2346.
- Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E.A. (2002). Age 21 cost-benefit analysis of the Title I Chicago Child Parent Centers. *Education Evaluation and Policy Analysis*, 24, 267-303.
- Reynolds, A. J., Temple, J. A., White, B. A., Ou, S., & Robertson, D. L. (2011). Age-26 cost-benefit analysis of the Child-Parent Center education program. *Child Development*, 82, 782-804.
- Rury, J. L. (2016). *Education and social change: Contours in the history of American schooling* (5th ed.). New York: Routledge.
- Rutter, M., & Rutter, M. (1993). *Developing minds: Challenge and continuity across the life span*. New York: Basic Books.
- See, B. H., & Gorard, S. (2015). The role of parents in young people's education—a critical review of the causal evidence. *Oxford Review of Education*, 41(3): 346-366.
- Sweet, M. A., & Appelbaum, M. I. (2004). Is home visiting an effective strategy: A meta-analytic review of home visiting programs for families with young children. *Child Development*, 75, 1435-1456.
- Takanishi, R., & Kauerz, K. (2008). PK inclusion: Getting serious about a P-16 education system. *Phi Delta Kappan*, 89(7), 480-487.

Temple, J. A., & Reynolds, A. J. (2015). Using benefit-cost analysis to scale up early childhood programs through Pay for Success financing. *Journal of Benefit-Cost Analysis*, 6(3), 628–653.

Table 1

Midwest Child-Parent Center Expansion Core Elements and Collaboration

Core program element	Shared ownership	Committed resources	Progress monitoring	Evidence of impact
Collaborative Leadership Team	Create a positive learning environment with accountability	Hire leadership team for implementation	Ensure that instructional and family services are effective	Increased fidelity of implementation; increased principal support to teachers, staff
Effective Learning Experiences	Establish common principles of small classes and balance of instructional activities	Provide matching funds to open new classrooms	Classroom Activity Report tool; observation of instruction tool; teacher checklist of skill development	Full-day preschool increased readiness skills and attendance; increased engagement in learning in classroom observations.
Aligned Curriculum	Provide coordinated instruction across grades	Implement new curricula for increased effectiveness	Annual curriculum alignment plan; observation of across-grade coordination	Increased child-initiated instruction linked to greater learning gains
Parent Involvement and Engagement	Establish a home-school agreement to partner with the school community	Increase staff time to work with parents and family members	Parent involvement logs; annual parent involvement plan	Program linked to increased parent involvement in school
Professional Development	Create a professional learning community for teacher and staff growth	Hire coaches and mentors to improve implementation and teaching practices	Checklist of fidelity; number of teaching modules and reviews of practice	Increased time in math instruction and in child-initiated activities
Continuity and Stability	Ensure consistency and predictability in learning from year to year	Additional classroom supports (e.g., teaching assistants, small classes); family outreach	Calculate the percentage of students who remain in the program over time	Participating families have lower mobility; small classes continue in K-3

Table 2

Percentage of Time in Instructional Activities During the Year by Chicago Full-Day and Part-Day Classes

Instruction				
Mean Percentage Time, Hours, and Percent Change				
Type of Activity	Part-Day (n = 76)	Full-Day (n = 21)	Increased hours in full-day classes	Percent change over part-day classes
Language & Literacy	48.9 (9.9)	48.1 (6.1)	269	232
Math	18.9 (5.7)	19.3 (3.2)	111	241
Social-Emotional	7.8 (4.1)	8.8 (3.5)	54	264
Science	8.1 (3.0)	8.4 (2.5)	49	244
Teacher Directed vs. Child Initiated				
Language & Literacy				
Teacher-Directed	50.5 (13.8)	52.4 (12.1)	145	241
Child-Initiated	49.5 (13.8)	47.6 (12.1)	124	223
Math				
Teacher-Directed	49.6 (11.8)	50.6 (12.0)	57	246
Child-Initiated	50.4 (11.8)	49.4 (12.2)	54	235
Science				
Teacher-Directed	43.1 (15.7)	53.1 (15.0)	29	293
Child-Initiated	56.2 (16.6)	46.2 (16.3)	20	205
Mean hours of total instruction for year	417	984	567	236

Note. Data are teacher reports for 16 sites in Chicago. Two full-day classrooms out of 23 did not report time use. Standard deviations are in parentheses. Due to omitting the category “other”, percentage time in instruction activity does not add to 100%.

Table 3. *CPC Estimates for School Readiness Skills and Parent Involvement in Two Studies*

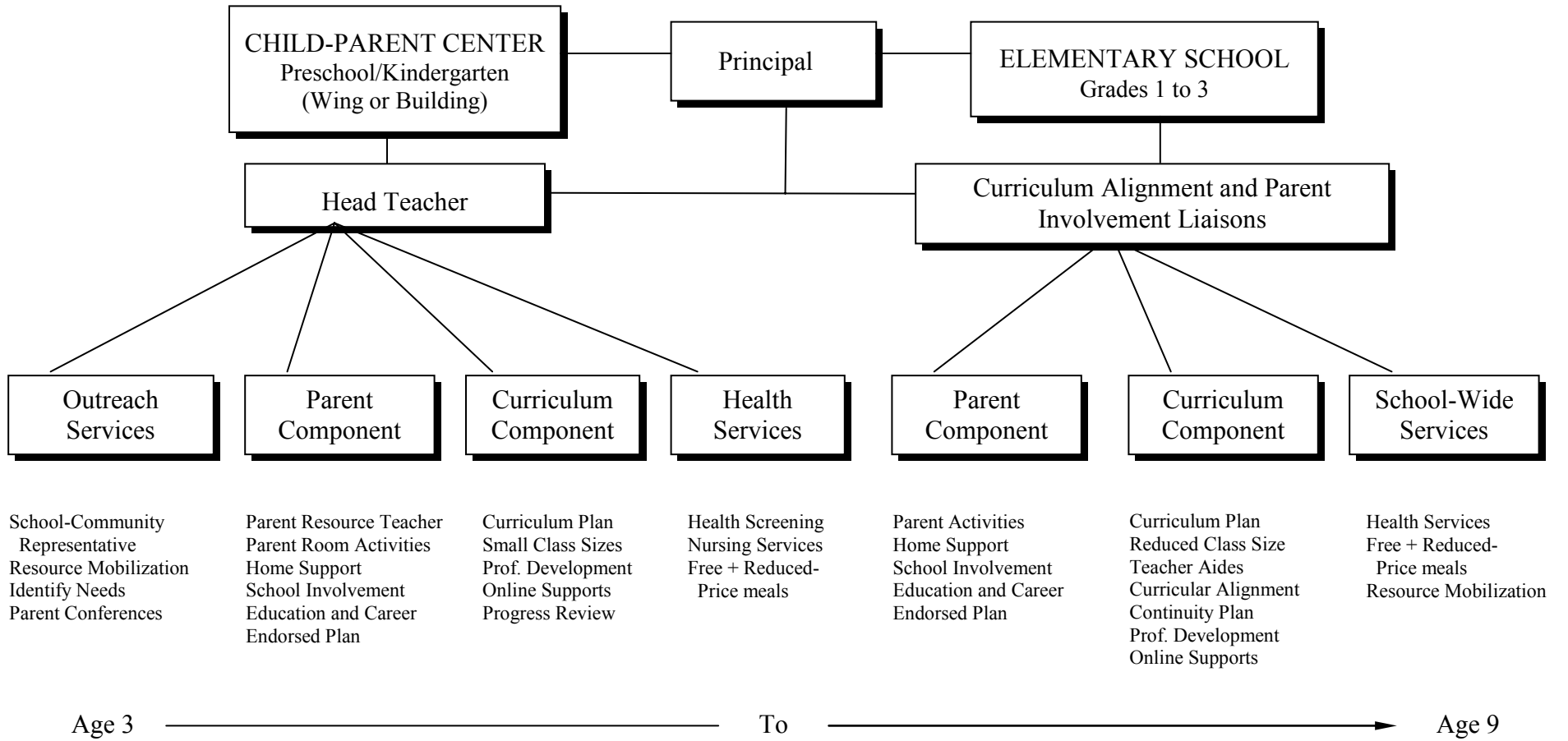
Study characteristics	Midwest Expansion Project			Chicago Longitudinal Study
	Chicago	Saint Paul	Total	
Preschool years	2012-2013			1983-1985
Research design	Quasi-exp, propensity scores			Quasi-exp., matched groups
Program, Control participants	1724, 906	215, 87	1993, 993	989, 550
Control group enrolled in PreK (%)	100	100	100	15%
African American/Hispanic/Asian (%)	64/34/0	30/14/31	60/32/3	93/7/0
Assessment	TS-GOLD	PALS		ITBS composite
Time of assessment	End of PreK	End of PreK		Beginning of K
Average class size/level of fidelity	17/high	17/high		17/high
CPC effect size in standard deviations	.48	.38	.47	.63
Higher dosage (full-day/2 years)	.65	n/a	.40	.71
Lower dosage (part-day/1 year)	.32	.38	.33	.36
Parent involvement effect size	.39	.20	.37	.46
Time of assessment	End of PreK	End of PreK		First grade

Note. Midwest CPC Chicago sample size is enrolled 3- and 4-year-olds. Saint Paul sample size is enrolled 4-year-olds for whom the school district provided data. Chicago Longitudinal Study sample size is an age cohort of children who enrolled at age 3 and/or 4. TS-GOLD = Teaching Strategies Gold Assessment, Total Score. PALS = Phonological Awareness Literacy Screening (Upper-case Alphabet Recognition). ITBS = Iowa Tests of Basic Skills cognitive composite. The quasi-experimental designs are propensity-score matching at the school level (i.e., achievement, family income, race/ethnicity) and matched groups based on demographic similarity and participation in district intervention. For dosage, Midwest CPC is full-day/part-day; CLS is 2 years versus 1 year for part-day.

Figure 1. CPC Preschool to 3rd Grade



Figure 2. Child-Parent Center Preschool to 3rd Grade Program



Appendix. Child-Parent Center Preschool to 3rd Grade Program: Background and Requirements

The Child-Parent Center (CPC) Preschool to 3rd Grade Program (CPC-P3) is a proven and cost-effective school improvement model designed to increase achievement and enrollment. The program provides comprehensive and continuous education and family support services from prekindergarten to third grade. Under the direction of a leadership team at each site and in collaboration with the Principal, the program is designed to enhance school readiness skills, increase early school achievement and performance, and promote parent involvement and engagement.

Social Importance of Addressing the Preschool to 3rd Grade Continuum

A major advance in early childhood education is the integration and alignment of services from preschool through the early grades. This integration can not only improve children's school transition in kindergarten but enhance learning gains from preschool that will promote enduring effects on later school performance. P-3 models have been evaluated but only the CPC program has strong evidence of large and enduring effects on school achievement, high school graduation, and well-being.

Although publicly funded preschool programs have grown dramatically and now serve 25% of all 3- and 4-year-olds, the magnitude and endurance of their impacts are rarely sufficient to close achievement gaps or raise performance to the national average and beyond. Evaluations of state-financed preschool programs show that the significant benefits at kindergarten entry, while meaningful, tend to drop over time. Recent national evaluations of Head Start also demonstrate that short-term effects often are not sustained.

Three contributing factors to this pattern of impacts are that most state and local preschools (a) provide only one year of service at age 4 and usually for part of the day, (b) do not provide comprehensive and intensive services, and (c) do not implement Pk-3 programs systematically. In the nationally representative, less than 10% received the P-3 elements commonly used in CPC (e.g., preschool and kindergarten in the same location, small classes, and intensive parent involvement). By providing longer duration of high-quality education and family support services to high-need students, CPC expansion shows great potential for efficiency as indicated by the high estimated return the program has demonstrated.

Key Program Elements

Table 1 shows the structure and components of the CPC program in which the six core program elements are implemented. The elements are effective learning experiences, collaborative leadership, curriculum alignment, parent involvement and engagement, professional development, and continuity and stability. The complete program requirements and guidelines are available at <http://cpcp3.org>.

Table A. Key Requirements of CPC P-3

Phase	Maximum child to staff ratio	Leadership Team	Curriculum Alignment	PD & Coaching	Site support	Research & Assessment
PreK (3&4yo)	17 to 2	HT, PRT, SCR	Evid.-based*	Coordinators	Mentors	On-going
Kindergarten	25 to 2	HT, PRT, SCR	EB	“ “	“ “	“ “
Grades 1 to 3	25 to 2	Liaisons	EB	“ “	“ “	“ “

Note. The Head Teacher (HT) runs the program at each site. Length of day for preschool is half day and full-day. *EB = evidence based. Liaisons are for curriculum and parent involvement. Coordinators provide professional development (PD) and teacher support for instruction. Site support mentors help ensure quality of implementation. PRT = Parent Resource Teacher. SCR = School-community representative. Teacher aides include at least 1.0FTE for 2 classes to provide 50% time in the class each day.

Requirement by Program Element

1. **Effective learning experiences, Preschool - 3rd grade:** Ensure mastery in language and literacy, math, science, and socio-emotional development throughout early childhood.
 1. Prekindergarten classes are limited to 17 children and have a minimum of 2 teaching staff.
 2. Kindergarten and Grade 1-3 classes are limited to 25 children and have a minimum of 2 staff.
 3. Head Teachers and classroom teachers are certified teachers with a bachelor’s degree (or higher). All assistants have an associate’s degree, 60 credit hours, or a CDA.
 4. Teachers document the organization and implementation of instructional practices each week in accordance with the effectiveness elements.
 5. Teachers meet with parents over the year (fall, winter, spring) to review children’s progress and discuss parent program opportunities with the PRT.

2. **Aligned curriculum:** Organize a sequence of evidence-based curricula and instructional practices that address multiple domains of child development within a balanced, activity-based approach.
 1. Implement an endorsed curriculum plan from P-3 grade that is aligned to standards, domains of learning, assessments, and learning activities.
 2. Provide a rationale for the curriculum plan including supplemental materials.
 3. Collaborate with the PRT to ensure that opportunities to engage families in student learning are available.

4. Provide meaningful professional development and ongoing coaching and feedback for teachers, aides, and other staff members that facilitates high-quality instructional practices.
3. ***Parent involvement and engagement:*** Comprehensive services led by the Parent Resource Teachers and School-Community Representatives that include multi-faceted activities and opportunities to engage families.
 1. The Parent Resource Teacher and School-Community Representative work closely with the Head Teacher and Liaisons to maintain a consistently supportive parent program across grades.
 2. Parents sign a CPC school-home agreement at the start of the school year.
 3. Sites maintain records of family participation in an online portfolio.
 4. Establish a written parent involvement plan based on a needs assessment that balances home, school, and community participation as well as opportunities for educational, career, and personal development. Plan is revised and reapproved annually.
 5. Every month, PRTs create and distribute a monthly parent involvement calendar, which reflects the parent involvement plan and the needs of the families.
 6. PRTs conduct parent/teacher conferences over the year (fall, winter, spring) to review progress in the parent program.
 7. All families will receive at least 1 home visit by a CPC staff during the fall.
 8. The PRT participates in parent/teacher conferences over the year to review progress in the parent program.
 9. The PRT establishes a parent advisory group for the center.
 10. A resource room dedicated to parent and family activities is available.
 11. PRTs provide opportunities for participation alternatives times of days.
 12. PRTs provide parent involvement opportunities for families of all backgrounds. Involvement for other family members is also emphasized.
4. ***Collaborative leadership team:*** A leadership team run by the Head Teacher in collaboration with the Principal.
 1. The program leadership team in each site includes the Head Teacher (or Director), Parent Resource Teacher, School-Community Representative, and Liaisons.
 2. Under the direction of the Head Teacher, the site leadership team meets regularly, and all members of the team of the same job position at neighboring CPCs also meet regularly.
 3. The leadership team is responsible for ensuring that other school staff have adequate resources, including time for preparation and collaboration, to effectively meet the goals of the other CPC elements.
 4. The Head Teacher establishes partnerships with community providers to strengthen service delivery and enlist local universities in training opportunities.

5. ***Continuity and stability***: Prekindergarten to school-age continuity through co-located or close-by centers that incorporates comprehensive service delivery and stability for children and families.
 1. Head Teachers in collaboration with Principals establish a structure of communication, planning, and joint activities between classes across grades (Preschool and K, K and 1st, 1st and 2nd, and 2nd and 3rd grade).
 2. Establish a plan to promote program continuity from preschool to 3rd grade.
 3. To promote continuity of services, class sizes are limited to 25 children in kindergarten through third grade with teacher aides for each class.
 4. Establish that the preschool cohort is assured continued enrollment in the program through third grade in the same school where they began participation.

6. ***Professional development system***: Integrate on-line professional development and on-site follow-up support for classroom and program applications.
 1. Individual teachers and staff meet regularly with school facilitators to review ways to support their instruction in the classroom and with other teachers.
 2. Teachers and staff actively participate in professional development modules with facilitators and take part in on-line activities and opportunities to share experiences with other teachers.
 3. All leadership team members participate in at least 2 professional development workshops during the year.
 4. Ensure that training modules are implemented jointly across grades such as for preschool and K teachers, K and 1st grade teachers, and so on.