A Challenging Research Environment: The ACS Child Care Centers

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The Administration for Children's Services Division of Child Care and Head Start is the largest publicly-funded child care system in the country. Over the past four years, approximately sixty early childhood teachers have participated in the training and implementation of the Big Math for Little Kids curriculum with Teachers College. Sixteen ACS child care centers are currently involved in a two-year evaluation study of BMLK with the Center for Children and Technology/Education Development Center and Teachers College, which concludes in June 2007.

The Educational Institution

New York City has a long tradition of supporting young children's growth and development with early childhood programs. In 1941, New York City became the first city in the nation to provide publicly subsidized day care services to working families, laying the groundwork for a partnership between the city, state and child care sponsoring boards that continues today (Chaudry, A. et al., 2005). To date, of the 650,000 children in New York City under the age of six, the Administration for Children's Services Division of Child Care and Head Start (ACS DCCHS) provides care and educational services to approximately 60,000 low-income infants, toddlers, and school age children (Chaudry, A. et al., 2005).

ACS DCCHS administers funds for both Child Care and Head Start. Child care services are funded through the New York Child Care Block Grant and City tax levy. On a ten-hour daily schedule, Child Care provides children with a solid foundation for

appropriate development enabling their parents to maintain employment. Child protective or preventive cases are also priorities. Head Start, a comprehensive child development program, is federally-funded and focused on assisting parents on public assistance or transitioning off of it and those involved in welfare-to-work activities (Chaudry, A., et al., 2005). Head Start services provide parents with support and assistance towards greater self-sufficiency and aim at improving the social competence, learning skills, health, and nutrition of their children, on a part-time and full-time basis.

All child care and Head Start programs are licensed by the NYC Department of Health and Mental Hygiene (DOHMH), requiring teachers to be credentialed by the State Department of Education. Child care programs are licensed to care for children between the ages of 2 months to 12 years while Head Start services mainly address 3- and 4-year olds. Given that the evaluation design of the Big Math for Little Kids (BMLK) curriculum (Ginsburg, H.P., Greenes, C., & Balfanz, R., 2003) involved children of pre-Kindergarten and Kindergarten ages (4- and 5-year olds), only child care programs were eligible to participate in the study.

Approximately 30,000 preschoolers in New York City receive ACS child care services in 329 center-based programs (NYC Administration for Children's Services, 2006a). Child care services are available to eligible families with incomes up to 275% of the federal poverty level although most of the families served are below 200% of the federal poverty line (Chaudry, A. et al., 2005). All families are required to contribute a fee based on a sliding income scale. Approximately fifty-six percent (56%) of the child care population is Black/African American, 33% is Hispanic/Latino, and about 11% is White/Non-Hispanic (NYC Administration for Children's Services, 2005).

It is important to note the ACS does not directly operate child care programs. Most children and families are served through contracts with hundreds of private, non-profit organizations that operate child care programs in diverse communities throughout the city. However, ACS regularly monitors its child care centers for compliance with the contractual terms and conditions, NYC DOHMH health and safety regulations, and the 1997 National Association for the Education of Young Children (NAEYC) guidelines for developmentally appropriate practices (NAEYC, 1997). Consultants based in four borough offices provide programs with on-site technical assistance.

Challenges Facing ACS Child Care

In recent years several factors have contributed to upsetting the stability of the child care system. One important factor concerns the increasing exodus of 4- and 5-year olds from Child Care to other educational agencies vying for the same age group. The Department of Education (DOE) Kindergarten programs have always constituted stiff competition for child care programs given that each year more parents opt to withdraw their 5-year olds from Child Care to place them in more formal, school-like settings. Further, the growing number of free DOE/Universal Pre-Kindergarten (UPK) programs serving 4-year-olds makes it increasingly difficult for child care directors to attract and retain this population even though Child Care is a full-day service and UPK is a half-day one.

Since the 1996 Welfare Reform Act, families involved in welfare-to-work activities are also eligible for Head Start services and many parents who fall under this category are making use of these services. These families are also eligible for vouchers

from the NYC Human Resource Administration (HRA), enabling them to enroll their children in private eligible programs or with licensed or unlicensed home providers.

New York City's growing deficit has forced many city agencies to undergo important budget cuts. ACS child care has not been impervious to this trend. As of September, 2006, all ACS school-age/after school care will be transferred to the NYC Department of Youth and Community Development (DYCD) programs. This transfer represents a loss of 30% of the child care population to DYCD as well as the $40 million dollars needed to operate the after school program. Child care programs providing after school care to an important number of children will have to quickly reach out to a younger population to fill the classroom vacancies or find other sources of revenue to cover the operating costs.

As a result of a leaner budget, all contracted child care programs are now required to maintain 100% enrollment to ensure maximum efficiency or risk funding cuts. Faced with the exodus of 4- and 5-year -olds, many directors have no choice but to enroll more 2- and 3-year old preschoolers. These measures require frequent readjustments to the classroom organization and staffing patterns to accommodate the younger age groups.

Child care programs are also faced with internal pressures. The disparities in the early childhood educational compensation and staff development system create a management challenge for the child care sponsoring organizations. Child care teachers earn significantly less than their counterparts in the DOE and even Head Start (Black-Greene, D. et al., 2005). The lack of parity in salaries, benefits, and training opportunities - despite similar educational background and experience – contributes to poor morale, the exodus of good teachers, and increased turnover rates. On the other hand, NYC teachers

are protected by union contracts that make dismissals and layoffs difficult, if not impossible, and child care directors are often stuck with teaching staff that is not up to par.

Finally, the No Child Left Behind (NCLB, 2001) legislation signed in 2001 has put enormous pressure on schools to improve students' literacy and math skills. Even some preschool programs (i.e., Head Start) are being held accountable to teach more basic academic content matter. Child Care has not escaped this reality. New NAEYC self-accreditation standards regarding early learning content and outcomes are out in the open and held as paragons of program quality (NAEYC, 2005). And although ACS does not yet evaluate Child care programs according to these higher standards, administrators are increasingly asking teachers to abandon their individually tailored classroom curricula for more scientific, "research-based" ones that focus on literacy and, sometimes, mathematics (NAEYC & NCTM, 2002). In many instances, programs are expected to make this transition in the absence of funds for resources and training.

It is within this challenging context that many ACS child care program directors and teachers whole-heartedly welcomed the opportunity to participate in the training and implementation of the Big Math for Little Kids (BMLK) curriculum as part of a two-year evaluation study conducted by the Center for Children and Technology and Teachers College.

BMLK Experience at ACS

In January, 2002, ACS and Teachers College undertook a small BMLK implementation study at a child care center. After observing classroom implementation

over the course of almost a year, the groundwork was set to further develop and improve the professional development workshops.

A year long professional development plan was designed that focused on preparing center directors and education supervisors to conduct BMLK professional development at their child care sites and to support and monitor their teachers' implementation of the program. First, ACS agreed to implement the plan on a trial basis for a year, thus providing the necessary administrative support for the effort. Then, a two-day Summer Institute introduced teams of directors/education supervisors and teachers to issues related to early childhood mathematics education (ECME) and to the BMLK program. The Institute was designed to review the workshop materials that had been developed and to introduce participants to general ideas of ECME and to the specifics of the BMLK program. Teams of directors/education supervisors and teachers from around the city were invited to attend the Institute on a voluntary basis. Representatives of some 15 programs attended the summer institute, which was favorably received.

In September 2002, the participants began to attend monthly train-the-trainer in-service workshops designed to provide detailed training in the BMLK curriculum and in workshops that supervisors would conduct with teachers in their own centers. Participants not only learned the program but also discussed the need to carefully observe teachers in the classroom to provide them with support and relevant feedback and to help teachers develop "communities of learners" as they engaged in learning how to implement the program. In addition, the monthly meetings served as a forum for discussion and for sharing of experiences and concerns as trainers and supervisors in ECME. The workshops thus provided the education supervisors and teachers with a

challenging and continuing opportunity for professional development (Ginsburg, H. P. et al., 2006).

The BMLK professional development workshop series has been on-going at ACS for the last three years. Participants' reports at the end of each series have been consistently positive. In addition to highlighting the importance of the math sequence in helping the children learn early mathematics, teachers reported becoming increasingly aware of the curriculum's strong literacy component. They noticed that as children became more proficient in early mathematics, their language skills also improved (see Morgenlander, M. & Manlapig, L., 2006 for a discussion).

Evaluation Study Buy-in

These early professional development experiences provided the foundation for the current evaluation study. Regular reports to ACS administrators on the good progress of the professional development workshops and the benefits for the agency translated into a swift top-level approval when the Center for Children and Technology (CCT) and Teachers College (TC) enlisted ACS's participation in the BMLK evaluation study. However, the identification of a pool of prospective child care centers, the dissemination of information, and the final commitment by center directors and teaching staff to comply with the terms of the study turned out to be a more involved process, one which lasted approximately four months.

Selection of the centers was based on the following five criteria: (a) each center must have at least two pre-Kindergarten classes and one Kindergarten class; (b) each class must have at least 20 students to ensure sufficient number of students for the

analysis; (c) students must remain in the center Kindergarten, rather than enter the New York City Public School system; (d) control centers must use Creative Curriculum; and (e) each center must display a willingness to participate in the project for the two-year duration, allow CCT and TC project staff to collect the needed data, and to require that their pre-Kindergarten and Kindergarten teachers receive training if selected for the treatment.

ACS identified one hundred and fifteen (115) child care programs as having a large 5-year-old population, establishing them as an initial pool of potential candidates for the study. The respective sponsoring board members, program directors and teachers were invited to informational borough meetings at which a CCT official explained the project requirements and expectations in detail. Programs were requested to sign up as prospective candidates if they complied with the terms of the study and could commit to the two-year project. In addition to receiving BMLK curriculum classroom sets and participating in monthly professional development workshops, participants were informed that selected programs and teachers would receive generous stipends.

Prospective programs were then closely surveyed to ensure that they had an adequate number of 4- and 5-year olds and that previous enrollment trends predicted that at least fifty percent of the younger age group would be promoted to Kindergarten within the center the following year. A final meeting was held with the remaining eligible program directors and teaching staff to confirm their commitment to the project, inform them of the upcoming selection process, and reiterate the implications for those selected.

All selected program directors and teachers agreed to several classroom observations by project staff to collect data regarding the quality and fidelity of teachers'

implementations. A field note template was also developed for project staff to provide detailed reports of teachers' behaviors as they conducted these tasks. The field notes offered a wealth of information that could not have otherwise been obtained. The reports provide detailed descriptions of how the teachers dealt with the mathematical content, how they imparted the directions, coped with the mathematical language, made use of the materials and how they engaged the children in the BMLK activities. It is important to point out that the field notes also revealed that teachers have a strong motivation to learn and an excellent potential for developing into quality early childhood mathematics educators.

The First Six Months

The project was launched in September, 2005. Expectations at the outset of the study were high. As previously mentioned, many child care directors were eager to participate in the evaluation study. They perceived it as an opportunity to improve the quality of their teaching staff and to demonstrate that their programs can have a positive impact on children's learning of early mathematics. Many teachers also welcomed the opportunity to enrich their classrooms with the math curriculum and materials, to participate in the early mathematics professional development series, and were particularly excited with the prospect of preparing their children for school mathematics through the BMLK implementation. However, as the following account reveals, realities do not always match expectations.

Phone conversations with selected center directors revealed that they were concerned about the restrictions that the rigorous research design imposed on the

classroom composition and promotion practices within the centers. As mentioned earlier, directors are pressured to maintain full enrollment at a time when ACS is losing a considerable number of children and it is a challenge for them to ensure that pre-tested classrooms remain intact.

Although directors in the treatment groups agreed to allow teachers to attend the monthly professional development workshops, this concession also placed a strain on them. Child care teachers are only entitled to three training days a year and directors have to find additional funds and resources to provide coverage.

Treatment group directors also expressed serious reservations about supervising their teachers' implementation of BMLK, as they are overwhelmed with administrative tasks and seldom have time to supervise teachers or provide them with educational feedback.

Finally, some directors anticipated morale problems among classroom staff given that only head teacher would receive stipends. This may explain why some assistant teachers and aides in the treatment classrooms have been resistant to cooperate in the implementation of the math activities.

In regard to the control group, several directors expressed concern at postponing the BMLK training until the conclusion of the study. Parents had been informed of the project and high expectations for children's mathematics learning were created. These directors firmly requested that the professional development not be delayed more than a year. Two control group directors had to withdraw their centers from the sample because they could not convince their teachers to participate in the study. These were older

teachers who were preparing for retirement and did not want to deal with the training requirements and the observations.

The field notes also shed light on teachers' state of mind and revealed that the classroom observations were particularly stressful for them. Several teachers showed visible signs of nervousness during the visits which may have affected their performance. One control group teacher, for example, has consistently requested her assistant to conduct the lesson during the observations.

Notes taken at the workshops were also very telling. Some teachers complained that their assistant teachers and aides did not always want to cooperate in the BMLK implementation, making the task more difficult for them. Yet other teachers stressed the need to involve all classroom staff in the BMLK training to ensure consistency of implementation. Often teachers complain that the math activities required more time to implement than anticipated. However, despite these challenges, virtually all sixteen teachers in the treatment group have attended the six BMLK professional development workshops conducted so far. At the workshops they are visibly excited and engage in lively discussions with the workshop leader. They also report noting significant progress in their students' understanding of mathematics. In brief, this year teachers show a level of enthusiasm that had not been observed before.

Implications and Probable Outcomes

ACS DCCHS is the only educational institution in New York City to simultaneously: a) train teachers in ECME; b) implement a comprehensive early childhood mathematics curriculum (BMLK); and c) participate in rigorous evaluation of

the curriculum. If the BMLK evaluation study is successful, ACS Child Care will no doubt stand out as a leader in ECME in the City and serve as a role model to other agencies that are interested in conducting ECME professional development and in preparing young children for school mathematics. However, it is clear that ACS could not have done this on its own. Thanks to a strong collaboration between the TC and CCT research staff and ACS officials, administrators and teachers, a project of this magnitude and importance could be undertaken.

Several short-term outcomes of the study are likely. First, ACS will probably attract new funding opportunities to conduct more BMLK professional development workshops and/or to participate in new research projects. Given the limited resources and monies available to the agency, Child Care and Head Start programs would welcome these possibilities.

Second, the existing culture of accountability will soon push early childhood administrators to make decisions about implementing research-based curricula in their classrooms. Assuming the study shows that the BMLK curriculum positively impacts children's learning of mathematics (and perhaps language, too), informed decisions can be readily made and the BMLK curriculum will probably be chosen for implementation in early childhood centers throughout the city.

Third, if the above is true, the positive role that the BMLK professional development workshops played in enhancing children's mathematics learning would also be established. Lessons learned from the BMLK workshops suggest that quality education for young children is equated with intensive and sustained professional development for teachers. First and foremost, teachers need to understand the content

matter to be taught. Second, they need to understand how children think about it and learn it and then they need to develop the practices that best teach it. The BMLK experience also suggested that teachers learn better within contexts that are supportive and stimulating. Workshop leaders encouraged teachers to think by presenting challenging questions and by providing a space for discussions and the sharing of information. Project staff was also sensitive to and respectful of the teachers and provided them with incentives such as on-time prizes and ready-made materials to facilitate implementation. In the future, child care directors will also need to be involved in the professional development initiatives, set aside time to supervise teachers' implementations, and provide them with positive and relevant feedback.

Fourth, if successful, the scientific evidence offered by this study will give early childhood education advocates the ammunition that has eluded them for a long time to push for more state and federal funding and to empower the early childhood teaching community in New York City.

In addition to evaluating the effects of the BMLK curriculum on children's mathematics outcomes, the study will also analyze the conditions that facilitated or impeded its success. An analysis of this nature will help to elucidate the teacher related variables that came into play in producing, or not, improvements in children's mathematics learning. These findings, in turn, would inform the design of high quality professional development models and practices. Developments like these would have a strong impact on and long-term implications for the agency, especially at a time when it is engaged in a major reorganization. ACS DCCHS, in concert with other city agencies, is currently spearheading a strategic plan intended to promote quality early childhood

care and education for low-income children in New York City (Chaudry, A. et al., 2005). Several concrete, actionable steps are already in place to improve the accessibility and quality of Child Care to low-income families. As this plan unfolds and starts to focus on preparing young children for school, special attention will be directed towards the educational initiatives that have proved effective in helping preschoolers make this transition. The BMLK evaluation study findings and outgrowths would provide ACS and other educational agencies in the city with a road map for producing and delivering high quality professional development as a vehicle for infusing quality into the early childhood educational system.

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