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Prekindergarten Academies—

A Snapshot of Teachers Engaged in Professional Development



Courtney Crim, Nicole Andrews, Jacqueline Hawkins, Jenifer Thornton, and Juanita Copley

Four teachers from different cultures and classroom settings, with different education and experience levels, work together to create a number sculpture. The teachers roll two dice, and numbers totaling five come up. They select five items from a variety of materials (feathers, craft sticks, straws, and such) and work together to create a sculpture, which they label Five. The teachers communicate, share, plan, learn, and laugh as they work. They will use this activity in their prekindergarten classrooms to engage children in hands-on learning that builds foundational knowledge about numbers and number concepts. This activity satisfies criteria in the Texas state prekindergarten curriculum guidelines in number and operations.

BEGINNING IN THE FALL OF 2003, 26 public school districts and 35 private preschools and child care facilities, along with the Harris County [Texas] Department of Education and the University of Houston, joined forces to implement a research-based professional development model. Funded by a portion

of a U.S. Department of Education grant, the team designed, developed, and implemented four-day summer workshops. Over three years, the workshops provided in-depth training for more than 500 prekindergarten educators in the Houston area.

Planning and coordinating such a vast effort required a team that included University of Houston professors, doctoral students, and graduate assistants; early childhood professionals from Houston area school districts and child care facilities; school district early childhood coordinators, principals, and instructional specialists; the director of Houston's Collaborative for Children; and the Harris County Department of Education. The team's collaboration ensured that all Harris County prekindergarten teachers would receive a powerful professional development experience.

The workshops, called Prekindergarten Academies, were designed to improve the educational experiences of prekindergarten children in low-income, high-need communities by providing meaningful, scientifically based professional development opportunities for their teachers. The workshops addressed instruction in literacy, mathematics, and socialization, supporting instructional strategies with research on how young children learn. The grant

Classroom Materials for Teachers

Picture Perfect Word Book classroom set, English or Spanish version (Hampton-Brown)

Jumbo Pocket Cube (component of *Growing with Mathematics* (Wright Group/McGraw-Hill))

Time-to-Discover Readers: *Life Cycles Set* (Scholastic)

Arcobaleno building set or a Spectra or Prismatic block set

10 assorted finger puppets

Measuring Worms

Foam Fun Magnetic Uppercase Letters

Foam Fun Magnetic Lowercase Letters

Foam Fun Spanish Expansion Set

Five professional development books:

The Young Child's Memory for Words (Meier 2004)

Young Children and Picture Books (Jalongo 2004)

Teaching Our Youngest (Armbruster, Lehr, & Osborn 2002)

Showcasing Mathematics for the Young Child (Copley 2004)

Literacy Through Play (Owocki 1999)

Binder for PowerPoint presentations, lessons, and other resources

Rolling cart



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promoted capacity-building opportunities for teachers to work with and learn from other teachers, and it targeted educators of young children ages three, four, and five—the first to do so in Texas.

Teachers from diverse backgrounds and early childhood settings, with a wide range of educational preparation and experience, participated in the Prekindergarten Academies. Those completing the workshop left with increased knowledge, skills, and confidence in math, literacy, and classroom management, and with books, classroom materials, standards-based instructional lessons, and a support network of peers.

Research supports the importance of having highly-trained, well-educated early childhood teachers (Darling-Hammond, Chung, & Frelow 2002). Not only is the quality of teachers' professional development important, but its intensity also plays a significant role in the effectiveness of early childhood programs and the learning of three-, four-, and five-year-olds (Allington & McGill-Franzen 2000; Zill, Resnick, & McKey 2003). This article, describing an intensive, high-quality professional development program for prekindergarten teachers in Harris County, Texas, suggests four guidelines for effective professional development that administrators, teacher educators, and staff development professionals can use.

Participants

When determining whom to include in the workshops, the team focused on teachers in Harris County public schools, child care facilities, and Head Start programs serving prekindergarten children with high economic need, including bilingual students and children with disabilities. Children entering school with one or more of these risk factors may have limited prior knowledge and experiences, which can result in future academic failure (U.S. Department of Education National Center for

Education Statistics 2001). The teachers were invited to attend one of seven academy sessions offered over several weeks at multiple locations to maximize convenience for participants. Enrollment was limited to 80 teachers per session to keep the sessions small. The available slots filled up quickly.

Academy design

The grant team developed the workshop content, incorporating the prekindergarten curriculum guidelines for the state of Texas (Texas Education Agency 1999), current research supporting best practices, national guidelines, and organizational position statements (see, for example, NAEYC & NCTM 2002).

Daily Schedule

8:30	Introductions and keynote
9:30	Small group 1
10:15	Small group 2
11:00	Large group—transitions and debriefing
11:30	Lunch
12:30	Small group 3
1:15	Small group 4
2:00	Choice centers
2:40	Large group—classroom management, challenging behaviors, and evaluation

Materials

Through the grant, the team purchased hands-on, developmentally appropriate classroom materials for the teachers, as well as a collection of professional resources (see “Classroom Materials for Teachers”). Spanish versions of some the materials were available for teachers working in bilingual classrooms. Teachers attending the academies received a rolling cart filled with the materials to keep and use in their own classrooms. Teachers arriving on the first day described the experience of receiving the materials as being “like Christmas.”

Small-Group Session Topics

- Name activities
- Shared reading
- Read-alouds
- Alphabetic principle
- Management
- Phonological awareness
- Meaningful print
- Patterns
- Counting
- Number and word problems
- Geometry
- Classification
- Predictable text
- Scaffolding learning
- Science and discovery
- Work stations



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More than Fingers and Toes: Number and Operations

PowerPoint presentation on research

- Mathematics should be integrated into literacy, science, social studies, art, and music (NAEYC & NCTM [2002] Position Statement, Recommendation 7).
- Counting objects “is much more difficult than adults might imagine. Children must coordinate the act of reciting the number words in order with touching the objects they are counting one by one. Initially children do the best job on this task when they have fewer than five items to count and the objects are arranged in a straight line. Some adults are surprised to discover that children must also learn that the last number spoken when counting a group of items tells the total number of items in the group. Understanding this concept is not automatic, but it is essential for all further work with numbers and such operations as addition and subtraction” (*Showcasing Mathematics for the Young Child* [Copley 2004], p. 14).

Objectives for children (from the Texas Prekindergarten Curriculum Guidelines [Texas Education Agency 1999])

- The child counts by ones to 10 or higher (Mathematics, Number and Operations)
- The child counts concrete objects to 5 or higher (Mathematics, Number and Operations)

Participant Activities

Introduction to Counting Activities. Participants take part in a number activity in small groups.

Critical Attributes of Counting. The leader facilitates a discussion of the following attributes and possible methods of teaching them:

- One-to-one correspondence
- Knowing the verbal counting sequence
- Keeping track of the items counted
- Saying the last number as the one that tells “how many” (see *Showcasing Mathematics*, p. 47, for a detailed explanation)

Children’s Counting Activities. Teachers choose one or more of the following activities to do in small groups or with the whole group.

Letter Walk with Finger Counting. One child is the pointer; another is the counter. They select a letter of the alphabet from the Foam Fun magnetic letters. (This activity can be done using colors or shapes instead of letters.)

- The pointer takes the foam letter, states the letter’s name, and searches for places it appears around the classroom (on the walls, in the classroom library, etc.) Each time the pointer finds the letter, she says the letter’s name and points to it. The counter then puts up one finger.
- When all five of the counter’s fingers are “up,” the counter places his hand on a piece of paper, and the pointer traces his handprint to show five. The children change jobs and repeat the process.
- The handprints can be labeled and displayed on the bulletin board to show the different letters the children found.

Moving with the Cube. This activity uses the Cat Physical Movement Cards (Set A) from the Jumbo Pocket Cube set. It involves counting and lively activity.

Dance It. See *Showcasing Mathematics*, p. 98.

How Many Are Hiding? See *Showcasing Mathematics*, p. 26.

Number Sculptures. See *Showcasing Mathematics*, p. 23.

Mr. Mix-Up. Play this either with a small group or the whole group. Ask the children to listen carefully while you count to see if you are counting correctly.

- Count a collection of objects or a group of people incorrectly, making a mistake like not keeping track, using the incorrect verbal sequence, or not matching using one-to-one correspondence.
- Ask the children if they can name the mistake.
- Play this either with a small group or the whole group

Assessment. The leader discusses Developing Pictures (in *Showcasing Mathematics*, p. 28), which is an excellent assessment tool that can be used to evaluate children’s progress in number development and representation.

Workshop daily events

Daily events were upbeat, and workshop days were structured to reflect a day in a prekindergarten classroom. Whole-group sessions, small-group rotations, breaks, lunch, transitions, and center time were components of each day.

Each of the four days began with keynote sessions (see “Daily Schedule”). Day one began with information pertaining to the grant, while days two, three and four focused on mathematics, play, and literacy environments, respectively. Teachers then rotated through four small-group breakout sessions. These sessions (two in the morning and two in the afternoon) addressed literacy, mathematics, and socialization. Color coding helped participants to find their scheduled sessions.

After the two morning breakout sessions, teachers met to debrief and have lunch. Lunch was covered by the grant, and the fajitas and lasagna were a big hit.

After lunch, teachers participated in two afternoon breakout sessions. These sessions were followed by free-choice center time in which participants took part in activities they could use in their own classrooms. The day concluded with a whole-group session that emphasized classroom management and a discussion of the ways in which teachers could prevent and respond to children’s challenging behaviors. Finally, teachers filled out end-of-day evaluations for the training sessions.



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Small-group sessions

The small-group sessions were one of the most valuable aspects of the workshops. They followed a similar format to ensure quality and consistency. Each 45-minute session began with a PowerPoint presentation clearly aligning the session topics and state prekindergarten curriculum guidelines (see “Small-Group Session Topics”). Leaders identified session objectives, related the objectives to the teachers’ classroom materials, modeled teaching strategies, and demonstrated appropriate use of the materials.

Teachers then participated in hands-on activities that brought together research, materials, and learning. Each session outlined a number of activities related to the session topic for teachers to use in their classrooms, and session leaders led the participants in several of the activities as time allowed. Teachers used the materials in ways the children would use them, while gaining an understanding of the research and the state and national guidelines behind the activities. When activities corresponded to sections in the teachers’ professional development books,

teachers tabbed the pages for future reference.

Many teachers said they had used similar activities in their classrooms without knowing their purpose. The workshops provided background information and research so that teachers understood the ways in which the activities and teaching strategies supported best practices in their classrooms.

Sessions concluded with a discussion of assessment options for each topic. An example of a session, “More than Fingers and Toes: Number and Operations,” outlines the content presented in a mathematics session on number and operations.

Impact of academies

In a formal impact survey and in informal discussions, teachers stated that the Prekindergarten Academies had a tremendous effect in increasing their skills, knowledge, and confidence in teaching literacy, mathematics, and socialization. The impact was strong regardless of participants' years of teaching experience or education levels. The survey results indicated that the greatest impact was in the area of mathematics, with the highest ranking for the following five items:

1. How confident are you in teaching patterns and classifying?
2. How confident are you in teaching counting?
3. I have increased my learning to create new activities that incorporate counting opportunities in my lesson in a variety of areas.
4. I have increased my knowledge of the importance of providing a variety of opportunities for my students to use geometry concepts in my classroom.
5. I have learned a variety of activities that help provide my students with opportunities to learn geometry concepts.

Discussion and implications

Findings from the data collected in the grant suggest four guidelines for administrators and specialists to consider when designing intensive professional development for teachers:

- putting resources and classroom materials in the hands of the teachers;
- correlating developmentally appropriate activities with research and state curriculum guidelines;
- conducting training through modeling and hands-on practice; and
- treating teachers professionally.

When designing professional development, collaboration among all participants, such as district personnel, local and/or state agencies, community businesses and educational professionals, regarding funding, planning, and implementation is crucial. If a large grant is not possible, it is beneficial to find a local business or agency that is willing to support educational programs by helping to underwrite the cost of materials. In addition, many school districts offer small grants to pay for professional development materials. Through their surveys and dialogue, teachers indicated that putting the materials directly into their hands and showing them how to use them was vital in the success of the academies.

The state curriculum guidelines and connections to research are also important factors to incorporate into teacher training. The empowerment teachers gain from knowledge goes a long way in professional development as they begin to understand not only which activities to offer, but also why the activities are appropriate or necessary in early childhood classrooms. Incorporating guidelines and research also ensures that teachers are creating lessons that meet the state guidelines and support best practices.

Furthermore, the structure of these professional development sessions enabled session leaders to not only transmit pertinent information to teachers but also to model appropriate teaching strategies and materials usage. Through this process, teachers were engaged in the activities through hands-on experiences. This format

is different from traditional professional development paradigms that may not encourage active participation or include components that model teaching.

Finally, professional development does not always focus on a particular grade level or content area. Instead, teachers from different grade levels and content areas may attend the same professional development sessions and then adapt the content to fit the needs of their students. This is especially true for early childhood educators in school settings who do not often receive professional development opportunities that focus on the unique needs of prekindergarten children. The Prekindergarten Academies focused solely on prekindergarten teachers. Many prekindergarten teachers said it was the first time they felt they were treated as professionals. For teachers of young children—and teachers in general—professional development opportunities that focus on the needs and challenges of their students seem particularly meaningful.

It is also important to bear in mind that professional development opportunities must involve impact collaboration with teachers, who bring their prior knowledge and skills into the sessions. Engaging prekindergarten teachers in meaningful professional development involves true collaboration and commitment. Future research from this grant will examine how this professional development model impacts student achievement.

For more information about the Prekindergarten Academies, contact Juanita Copley or Jacqueline Hawkins at the University of Houston.

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