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A Learning Combination: Coaching with CLASS and the Project Approach

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Abstract

The focus of this ongoing research is the effectiveness of coaching in improving the quality of teacher-child instructional interactions in Head Start classrooms. This study examines the relationship between two measures: Classroom Assessment Scoring System (CLASS) and a Project Approach Fidelity form developed by the authors. Linear regressions were used to investigate predictors of CLASS domain scores. The Project Approach Fidelity scores have positive predictive relationships to the CLASS domains. Higher Project Approach Fidelity scores predicted higher scores for the CLASS Emotional Support, Classroom Organization, and Instructional Support domains. Consistent with their findings, the authors recommend that use of the Project Approach be combined with attention to behaviors emphasized in the CLASS to help teachers intentionally improve instructional quality in prekindergarten classrooms.

Introduction

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A goal for prekindergarten education today is to maintain high expectations for all children, while closing what is often called “the school readiness gap” associated with socio-economic status. Recent research indicates that both instruction and teacher-child interactions may be predictors of child outcomes (Bogard, Traylor, & Takanishi, 2008; Chien et al., 2010) and that there is considerable variation in the quality of instruction and teacher-child interactions in classrooms (Curby et al., 2009; Howes et al., 2008; LoCasale-Crouch et al., 2007; Pianta, 2005, 2006). Research also suggests that continued professional development and support for early childhood classroom teachers is needed generally to improve classroom quality and enhance children’s learning (Bogard et al., 2008; Lieber et al., 2009; Pianta, 2005, 2006; Pianta, Howes et al., 2005; Pianta, Mashburn, Downer, Hamre, & Justice, 2008).

In this article, we describe an ongoing study that combines coaching with implementation of the Project Approach and use of the Classroom Assessment Scoring System (CLASS), a standardized classroom observation instrument focused on teacher-child interactions (Pianta, LaParo, & Hamre, 2008). An interest in understanding and refining coaching strategies originated with a group of Head Start coaches who formed a community of practice with colleagues from two local universities.

After being trained in the use of the CLASS as a professional development tool, the group decided to investigate how to support teacher-child interactions in the Instructional Support domain of CLASS, where scores had been lowest for the classrooms of the teachers being coached, as well as for classrooms observed in large national studies (Curby et al, 2009; Hamre & Pianta, 2005).

During the pilot year, coaches engaged teachers in side-by-side analysis of videotaped teaching practice using the CLASS Instructional Support domain as a framework. Coaches worked with teachers to set goals for improvement of specific teacher behaviors and provided support for achieving those goals. At the end of the pilot year, the group of coaches reflected on research findings to plan for the second year. Although results were promising and included significant shifts in CLASS Instructional Support domain scores, the coaches posited that the approach to coaching might be enhanced if teacher-child interactions were more closely connected to classroom curriculum. The Project Approach was selected as a curriculum element because of its sustained opportunities for investigation of worthy topics and the multiple contexts in which teachers and children can think together.

Helm and Katz (2011) propose that the Project Approach provides experiences that involve students intellectually and develop their dispositions to make sense of experience; to theorize, analyze, hypothesize, and synthesize; to predict and check predictions; to find things out; to strive for accuracy; to be empirical; to grasp the consequences of actions; to persist in seeking solutions to problems; to speculate about cause-effect relationships; and to predict other's wishes and feelings (p. 4). The participating coaches noted that the emphasis on higher-order thinking skills and intellectual dispositions in the Project Approach aligned well with the CLASS Instructional Support domain (Pianta, La Paro, & Hamre, 2008). For example, teachers rated high in CLASS Instructional Support domain (Concept Development dimension) often engage children in discussions and activities that encourage analysis and reasoning. These teachers focus on problem-solving, prediction and experimentation, classification and comparison, and evaluation. They provide opportunities for children to brainstorm ideas, plan activities, and create products. They help children integrate concepts with related ideas, including previous learning, and relate concepts to the real world (p. 62). Teachers rated high in CLASS Instructional Support domain (Quality of Feedback dimension) also provide feedback that expands learning and understanding. They engage in back-and-forth exchanges with children, invite children to explain their actions and ideas, ask open-ended questions, and prompt children to explain their thinking (p. 69).

The coaches hypothesized that the high-level instructional interactions described in the CLASS Instructional Support domain would occur more naturally and frequently if teachers were engaging with children in the Project Approach. The coaches also read Helderbran and Fennimore's (2004) proposal for an inquiry approach to professional development in which teachers become researchers of their practices by documenting and

reflecting on their work. The coaches hoped that the Project Approach would provide a context that would prompt both the coaches and the teachers to become more observant and reflective in their thinking about children's intellectual development (Catapano, 2005).

Review of the Literature

To provide background and context for this study, we review research and professional literature in four areas: professional development and the CLASS; coaching; the Project Approach; and teacher beliefs.

Professional Development and the CLASS

In-service teacher professional development has been shown to have great potential to improve the quality of classroom interactions and to enhance outcomes for children (LoCasale-Couch et al., 2007; Mashburn et al., 2008; Pianta, 2005, 2006; Pianta, Mashburn et al., 2008). Recent research indicates that when teachers intentionally focus on teacher-child interactions, children's behavioral regulation and cognitive competencies improve (Downer et al., 2011; Lieber et al., 2009; Mashburn et al., 2008). Coaching teachers in the context of the classroom may be the most effective avenue to improving the intentionality of teachers and supporting children's development (Mashburn et al., 2008). Ponticell (1995) found that site-based intervention with direct observation and follow-up improved self-analysis of teaching, enabled teachers to learn new ways of collaboratively discussing each other's teaching, and fostered teachers' learning and experimenting with new teaching strategies. High-quality professional development is characterized by teachers participating and learning to draw support from peer networks, external professional groups, and site-based professional activities.

Pianta, LaParo and Hamre (2008) recommend that professional development center on specific teacher-child interactions and use standardized, validated measurement. The Classroom Assessment Scoring System (CLASS) provides a "common metric, vocabulary, and descriptive base for classroom practices and observations" (La Paro, Pianta, & Stuhlman, 2004, p. 424). The CLASS (Pianta, La Paro, & Hamre, 2008) organizes indicators of teacher-child interactions into 10 dimensions within three broad domains: Emotional Support, Classroom Organization, and Instructional Support.

The CLASS was selected as the pedagogical focus of this coaching project because CLASS dimensions have been shown to significantly predict enhanced social and academic outcomes in prekindergarten (Curby et al., 2009; Howes et al., 2008; Mashburn et al., 2008), kindergarten, and first grade (Hamre & Pianta, 2005).

Coaching

Coaching is an approach to professional development intended to help a teacher transfer new knowledge, strategies, and skills to classroom practice and to promote continuous self-assessment through a cycle of observation, action, and reflection (Rush & Shelden, 2011). To promote substantive changes in teacher beliefs and practices, coaches provide teachers with

support that is individualized, collaborative, and frequent (Sheridan, Edwards, Marvin, and Knoche, 2009). Many recent studies report promising results from coaching as an embedded development process (Downer, LoCasale-Crouch, Hamre, & Pianta, 2009; Gallucci, Van Lare, Boatright, & Yoon, 2010; Hsieh, Hemmeter, McCollum, & Ostrosky, 2009; Kissel, Mraz, Algozzine & Stover, 2011; Neuman & Cunningham, 2009).

The Project Approach

Project methods were introduced by Dewey (1916) and made popular by Kilpatrick (1918). In the Project Method, curriculum content was negotiated between teacher and children. The teacher acted as the guide. Teacher and children co-constructed the curriculum, children reconstructed experiences, and interconnections were made between past and future activities (Clark, 2006; Glassman & Whaley, 2000). The Project Method focused on purposive thinking and learning (as opposed to memorizing) and rested upon Dewey's conception of a "complete act of thought" that proceeds from the effort to solve a problem (Whipple, 1934). Katz and Chard (2000) updated Dewey's ideas, defining the "Project Approach" as an in-depth investigation of a worthwhile topic and recommending it as one element of any learner-centered curriculum. The Project Approach was selected for this study because long-term investigations help teachers plan opportunities for children to strengthen their intellectual dispositions to take initiative, be curious, pose and solve problems, develop hypotheses, gather data, and revisit and evaluate information (Helm & Katz, 2011).

The research base for the Project Approach is small (Aral, Kandir, Ayhan, & Yasar, 2010; Beneke & Ostrosky, 2009; Dresden & Lee, 2007; Li, 2004), hence the importance of this study of the relationship of the Project Approach and CLASS Instructional Support. Only a few studies have combined the Project Approach and coaching. For instance, Li (2004) combined peer coaching, mentoring, support from an outside consultant, and project work to build a learning community, leading to significant improvements in teaching (Li, 2004, p. 154). In the current study, an outside consultant supported coaches and teachers.

The Role of Teacher Beliefs

There are contrasting belief paradigms about the most effective teaching practices and how children learn best. The National Association for the Education of Young Children's position statement on developmentally appropriate practices (Coppole & Bredekamp, 2009) stresses the importance of child-initiated learning and positive teacher-child relationships. Involving children in curricular decisions and allowing them to share responsibility for their own learning is vital to ensure motivated, lifelong learners.

Child involvement in curricular decisions is central to the Project Approach. However, this can present a challenge for teachers. As Clark (2006) notes, the Project Approach has no scripts, suggested activities, or teacher's manuals and the role of the teacher can feel uncertain for the novice. Several experiences with projects are necessary before teachers begin to have confidence in the children's abilities to make significant decisions (Helm & Katz, 2011); as Doyle (1997) notes, changes in teachers'

beliefs may take three to five years. However, the decision was made to use the Teacher Belief Scale (Charlesworth, Hart, Burts, & Hernandez, 1990) in this study to see if pedagogical beliefs would change as teachers learned more about Project Approach practices when supported by weekly coaching in their classrooms. Measurements of teacher beliefs might provide insight into any changes in CLASS scores related to coaching.

Methods

This study described here was part of an ongoing multiyear in-service coaching project. The researchers focused on two questions: (a) Does using the Classroom Assessment Scoring System (CLASS) observational instrument as a professional development tool make a difference in teacher instructional interactions in the classroom? (b) What are the relationships between Head Start teacher ratings in CLASS domains and dimensions, our Project Approach Fidelity form, and pedagogical teacher beliefs scores?

Participants

All participants volunteered for this study. There were 21 Head Start teachers from one Head Start grantee (see Appendix 1 for demographics). Before the study, 11 of the 21 teachers had been exposed to the Project Approach, either through training or classroom practice. At the beginning of the coaching project, teachers participated in a two-hour introduction to CLASS and a two-hour overview of the Project Approach. Each teacher received a CLASS Pre-K Dimensions Guide (Teachstone Training, 2011) and the book *Young Investigators: The Project Approach in the Early Years* (Helm & Katz, 2011).

Fourteen coaches from the Head Start grantee were involved in the study (see Appendix 1 for coach demographics). Twelve were education coordinators assigned to provide on-site support to teachers, and two were grantee specialists. Prior to the study, the coaches had been trained on coaching roles and processes (Humbarger, 2012). Five of the coaches had attended summer Project Approach institutes. During the study, coaches participated in two days of CLASS training, two training sessions on the Project Approach (including a full-day workshop with Lilian Katz at a local conference), and one training session on the use of video equipment. Coaches received CLASS Pre-K Manuals (Pianta, La Paro, & Hamre, 2008), and the book *Young Investigators: The Project Approach in the Early Years* (Helm & Katz, 2011).

The role of outside consultant was filled by a colleague from a local university who was part of the coaches' community of practice and had contributed to the conception of the coaching project. The consultant helped coaches work with teachers as they transferred knowledge and skills into practice. This ongoing support helped build capacity in coaches, many of whom were also learning about CLASS and the Project Approach.

Coaching Procedures

Two professional development concepts informed the development of our coaching processes: inquiry and communities of practice. We selected inquiry as a model for professional development because it provided

opportunities for coaches and teachers to engage in a cycle of documentation, analysis, reflection, and action; to focus on children's learning, particularly the thinking process; to develop positive agency; and to create congruence of practices with coaches, teachers, and children (Catapano, 2005; Helterban & Fennimore, 2004). At the conclusion of the pilot year of this study, the coaches had decided to make explicit an inquiry approach as teacher and coach worked side-by-side, studying videotapes of teacher-child interactions and documentation from the Project Approach to better understand children's thinking and the effects of specific teaching strategies. The coaches were seeking to create a coaching process that was congruent both in practice and philosophy with the shared inquiry of teacher and children in the Project Approach.

Helm and Katz (2011) note that teachers who have not been able to observe other educators guiding project work "are often at a loss as to how to get a project started and then follow it through. The structure of the project approach, however, provides guidelines for the process" (p. 10). Coaches indicated similar challenges in beginning the inquiry process with teachers. Therefore, five tools were used to provide a framework for analysis of the videos and the documentation to more effectively promote children's higher level thinking and more accurately assess children's capabilities:

CLASS Instructional Support domain, which addresses how teachers help students think creatively and solve problems, receive feedback about their learning, and develop more complex language abilities;

The Project Approach as a curriculum element;

The Child Assessment Protocol, which provided opportunities for reflection on specific child documentation related to CLASS and the Project Approach, including language and conversation, writing, drawing, classification, prediction and experimentation;

Analysis of videos of teachers and children thinking together in the classroom;

Coaching Contact Forms, which were used to guide and document the content of the inquiry conducted each week by the coach and teacher and included two questions that supported the development of the community of practice: What are we learning about teaching and learning? How will we share what we learned with others?

This study emerged in the context of a coaches' community of practice, which we believed would support the complexity of their support for teachers and help build the intellectual and social relationships that would strengthen and advance the work. Our intent was to build a sense of both individual and collective efficacy among the coaches. Coaches met with individual or pairs of teachers for at least one hour each week. Coaches and consultant met monthly as a large group. The consultant also met with individuals or small groups of coaches monthly, or more often if requested. Because the consultant was involved with each of the participants, she was able to advance the work of the community between meetings by sharing effective strategies for teaching and learning that were being developed by coaches and teachers.

Evaluation Procedures

Evaluation instruments used for this study were the CLASS instrument, the Project Approach Fidelity form developed by the authors, and a version of the Teacher Belief Scale.

The CLASS Instrument: Three trained observers used the CLASS instrument to rate Head Start teachers on 10 dimensions of interactions over two-hour observations in the fall and spring. The CLASS (Pianta, La Para, & Hamre, 2008) provides a measure of the quality of three global domains and 10 dimensions of teacher-child interactions in prekindergarten classrooms: 1) Emotional Support domain, which includes the dimensions Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspectives; 2) Classroom Organization domain, which includes the dimensions Behavior Management, Productivity, and Instructional Learning Formats; and 3) Instructional Support domain, which includes the dimensions Concept Development, Quality of Feedback, and Language Development. Each CLASS dimension is rated on a 1–7 scale, with 1 or 2 indicating low quality; 3, 4, or 5 indicating mid-quality; and 6 or 7 indicating high quality. The range for each dimension was 1 to 7 and the internal consistency of CLASS (Cronbach's alpha) was .97 for the fall observations and .96 for the spring observations.

Observers followed the recommended research protocol, wherein each of four 20-minute observations was followed by a 10-minute scoring segment. A teacher score for each dimension was computed and domain scores were tabulated from the dimension scores. (Prior to data collection, inter-rater observer reliability with master codes was determined using videos from Teachstone, the agency that manages the CLASS observational tool. To be reliable all observers were within one scale point of the expert standards or in at least 80% overall agreement with the CLASS training video tapes. During data collection, 10% of the observations were interrater [80% or higher] to ensure reliability of observations.)

Project Approach Fidelity (PAF) Form: To study teachers' adherence to Project Approach implementation, we developed what we call a Project Approach Fidelity form. The PAF form includes items related to content and instruction as well as teacher/child interaction and is intended to ascertain how closely the teacher adheres to Project Approach practices. The content and instruction items include questions related to the classroom environment, activities, and scheduling (see Appendix 2). The observers completed a PAF form after the CLASS observation of each teacher. Teachers and coaches also completed PAF forms. Cronbach's alphas for the Project Approach Fidelity form indicated a high degree of internal consistency of the form in both fall .94 (N=22) and spring .95 (N=21). This analysis used only scores from the observer PAF forms, which have been shown to have stronger relationship to observed practice and more appropriate practice than do scores on PAF forms completed by a teacher or a coach (Vartuli & Rohs, 2009).

Teacher Beliefs Scale (TBS). Teachers and coaches completed the Teacher Beliefs Scale (TBS), a survey of teacher beliefs about developmentally appropriate practices (Charlesworth et al., 1990) during

fall and spring. Items on the TBS represent several areas of instruction specified by the NAEYC guidelines (Bredenkamp, 1987): curriculum goals, teaching strategies, guidance, language development and literacy, physical development, aesthetic development, motivation and assessment of children (Charlesworth et al., 1990). The TBS was selected for this study because it addresses specific classroom activities and each activity's relative importance. A 37-item version of the TBS (Burts et al., 1993; Charlesworth et al., 1990, 1993) was used for this research. The teachers rated each item on a Likert scale from 1 (not important at all) to 5 (extremely important). Cronbach's alphas were .59 for the fall and .75 for the spring data collections.

Analysis

CLASS domains, dimensions, and indicators were compared with the Project Approach Fidelity items in a crosswalk. (See Appendix 2 for the specific items and dimensions. Note, some of the items on the PAF relate to one or more CLASS domains.) A majority of the PAF items (81%, or 21 out of 26 items) related to the CLASS Instruction Support Domain. Eleven of the 26 PAF items (42%) were similar or equivalent to indicators from the Instructional Learning Formats dimension in the Classroom Organization Domain. Nine out of 26, or 35%, of the PAF items related to the Emotional Support Domain, specifically to the dimensions Teacher Sensitivity and Regard to Student Perspectives.

Correlations of scores from the Teacher Belief Scale (TBS), CLASS, and Project Approach Fidelity (PAF) form were used to explore relationships among/between variables. Linear regressions were used to further explore the relationships between CLASS, teacher beliefs, and Project Approach Fidelity scores. The scores from the TBS, CLASS, and PAF form were normally distributed.

Findings

Our first research question was concerned with whether using the Classroom Assessment Scoring System (CLASS) observational instrument as a professional development tool makes a difference in teacher instructional interactions in the classroom. Paired t-tests were computed between fall and spring scores on the 10 dimensions and 3 domains of the CLASS. Paired t-tests of the fall and spring total CLASS scores revealed a meaningful improvement for participants, $t = 2.56$, 20 , $p < .02$, in demonstrating effective pedagogy. Significant shifts between teacher fall and spring mean scores were found in two domains: Emotional Support $t = 2.32$, 20 , $p < .03$ and Instructional Support $t = 2.46$, 20 , $p < .02$. Although there was not a significant shift in the Classroom Organization domain $t = 2.07$, 20 , $p < .051$, the results were positively skewed. The difference in the observer Project Approach Fidelity scores from fall to spring was also significant, $t = 6.45$, 20 , $p < .00$. (See Table 1 for t-test scores.)

Table 1

Table 1
T-test Pre/post Mean Scores

Instrument	Pretest		Posttest		df	t	p
	Mean	SD	Mean	SD			
CLASS Total Score	12.77	2.53	14.58	2.72	20	2.56	.02
Emotional Support Domain	5.26	.94	5.78	.77	20	2.32	.03
Instructional Support Domain	2.66	.91	3.47	1.30	20	2.46	.02
Classroom Organization Domain	4.85	.96	5.32	.80	20	2.07	.05
Project Approach Fidelity	48.48	6.97	72.43	15.79	20	6.45	.00
Teacher Belief Scale	158.67	11.73	159.9	14.23	20	-.96	.72

The second research question focused on what relationships might exist among Head Start teacher ratings in CLASS domains and dimensions, Project Approach Fidelity, and pedagogical teacher beliefs scores. The observer Project Approach Fidelity (PAF) and teacher belief scores were correlated with the CLASS fall and spring domain scores and CLASS spring total scores. CLASS total scores for spring were significantly correlated with observer PAF scores, $r = .76$, $p < .00$ but not with teacher belief scores, $r = .28$, $p < .22$ ns also measured in the spring. The PAF appears to have a significant relationship to higher interaction scores as measured by the CLASS within the same time frame. Teacher belief scores appear to be more consistent over time and no significant correlations were found with spring CLASS scores or PAF scores.

Improvement of Project Approach implementation scores was desired because implementation of the Project Approach was a focus of the study. The difference between the observer Project Approach Fidelity fall and spring scores were statistically significantly, $t = 6.45$, 20 , $p < .00$. The relationship between teacher belief scores and the observer PAF was low moderate, $r = .19$, (not significant). The lack of statistical significance may be related to the low number of participants or to the gap between belief and practice that researchers have noted in previous studies (McMullen, 1997, 1999; Stipek & Byler, 1997; Vartuli, 1999).

Teacher Belief Scale (TBS) scores and observer Project Approach Fidelity (PAF) scores were used as predictors of scores in the three CLASS domains: Emotional Support, Instructional Support, and Classroom Organization. Linear regression outcomes indicated that the PAF was a significant predictor for CLASS Emotional Support ($B = .78$, $t = 5.70$, $p < .00$), Classroom Organization ($B = .65$, $t = 3.39$, $p < .03$), and Instructional Support domains ($B = .69$, $t = 3.91$, $p < .00$). (See Table 2 for summary scores.)

Table 2

Table 2
Summary of Regression Analysis for Variables Predicting CLASS Domain Scores (N = 20)

Domain/Variable	B	SEB	B	t	p
Emotional Support					
Pretest CLASS	.04	.04	.11	.84	.41
Teacher Belief	.01	.01	.11	.85	.41
Project Approach Fidelity	.04	.01	.78	5.7	.00
Instructional Support					
Pretest CLASS	-.01	.08	-.08	-.10	.92
Teacher Belief	.02	.02	.22	1.26	.21
Project Approach Fidelity	.05	.01	.69	3.91	.00
Classroom Organization					
Pretest CLASS	.02	.06	.05	.27	.79
Teacher Belief	.00	.01	.00	-.01	.98
Project Approach Fidelity	.03	.01	.65	3.39	.03

Note
Adjusted R² = .66; and the regression function is significant: F(3,17) = 13.83 (p<.01) for Emotional Support Domain
Adjusted R² = .46; and the regression function is significant: F(3,17) = 6.72 (p <.03) for Instructional Support Domain
Adjusted R² = .43; and the regression function is significant: F(3,17) = 4.35 (p <.02) for Classroom Organization Domain

In predicting CLASS scores, Project Approach Fidelity (positive effect) was significant for the Emotional Support, Classroom Organization, and Instructional Support domains. The PAF explained 66% of the variance for the Emotional Support, 43% for the Classroom Organization domain scores, and 46% of the variance on the Instructional Support domain scores. Teacher belief scores were not a significant predictor for any CLASS domains.

Discussion

These findings suggest that an approach to professional development that combines CLASS with the Project Approach enhances teacher-child interactions. It is important to reiterate that all participants were involved in weekly coach/teacher meetings, monthly consultant visits (coach/teacher and consultant), and monthly large group meetings of coaches and consultant. A possible explanation for the gains in scores is that these meetings helped teachers and coaches become more aware of how to implement practices emphasized in CLASS and the Project Approach.

The Project Approach Fidelity scores have a significant positive predictive relationship with all three CLASS domains (Emotional Support, Classroom Organization, and Instructional Support), suggesting that promising gains in teacher-child interactions can be intentionally encouraged through professional development that includes the Project Approach as a curriculum element.

The relationship of the PAF scores to Emotional Support is of particular interest. Hamre and Pianta (2005) found the highest academic achievement in first-grade classrooms with high emotional support, and the Project Approach is noted for the way it encourages children to practice social skills

and learn to compromise, negotiate, and resolve conflicts (Helm, 2003; Helm & Lang, 2003; O'Mara Thieman, 2003). The relationship of PAF scores to Instructional Support suggests that the Project Approach promotes higher-level thinking in children and may complement CLASS in encouraging high-quality teacher-child interactions. Pianta (2005) reports that early childhood classrooms tend to be “socially positive but instructionally passive” (p. 239) and proposes that teachers be helped to purposefully challenge and extend children’s learning, especially in light of the finding that the poorest quality teacher profile is associated with poverty-level classrooms (LoCasale-Crouch et al., 2007). In classrooms with teachers who had moderate to high Instructional Support scores, children from a range of backgrounds (high and low maternal education) were found to have similar levels of achievement (Hamre & Pianta, 2005).

Howes et al. (2008) suggest that professional development efforts in Head Start classrooms must improve the quality of interactions because prekindergarten quality predicts future academic performance. Although recent findings have been mixed regarding the relation between child outcomes and higher educator scores on the CLASS Instructional Support Domain (Curby et al., 2009; Domínguez, Vitiello, Maier, & Greenfield, 2010; Guo, Piasta, Justice, & Kaderavek, 2010; Mashburn et al., 2008), we recommend further study of combining the CLASS behaviors with the Project Approach with intentional focus on improving instructional quality and enhancing child outcomes.

In one study, attention to the process of learning and the strategies of teaching was shown to have positive results. Curby et al. (2009) noted that higher CLASS Concept Development and Quality of Feedback scores were related to the greatest academic gains for children. As teachers facilitate project work, they pose problems, engage in feedback loops, ask children to explain their ideas and actions, and promote language use. Children engaged in project work predict, experiment, classify, analyze, reason, plan, and create as they investigate a topic of interest. The teacher-child interactions described by CLASS Concept Development and Quality of Feedback are the same ones teachers use in the Project Approach to further development of children’s intellectual dispositions.

Professional development is critical to increasing teacher knowledge and skills and improving classroom practice (Desimone, 2009; Rudd, Lambert, Satterwhile, & Smith, 2009; Zaslow & Martinez-Beck, 2006) and coaching has been proposed as the key to reforms in teaching and learning. Neuman and Cunningham (2009) have stated that “professional development that contains both content and pedagogical knowledge may best support the ability of teachers to apply knowledge to practice” (p. 534).

The findings of this study also indicate that the curriculum element (the Project Approach) and pedagogy (CLASS Instructional Support domain) were a positive combination for use in coaching focused on improved teacher-child interactions. Although no significant correlations were found between teacher beliefs with CLASS scores, changes in beliefs may be seen later since practice and successful interaction may precede changes in beliefs (Guskey, 1986). Additional coaching may help change teacher

beliefs by encouraging reflection that bridges the gap between “espoused theory and actual practice” (Veenman & Denessen, 2001, p. 389).

The small sample size, making this an exploratory study, is one of its limitations. Also, as with most research into coaching, there is natural variation in how coaching support was given to teachers and how teachers engaged with and responded to the treatment. Finally, child outcomes are not included. In future research, the number of coaches and teachers will be expanded. Measures of coaching interaction variations will be included. Child outcome data will also be included to determine if higher teacher scores on CLASS and Project Approach Fidelity correlate with enhancement of children’s learning.

Conclusion

This study focused on improvement of teacher-child interactions as described in the CLASS Instructional Support domain. Expectations were clear regarding the frequency, intensity, and duration of coaching sessions. The tools provided to coaches and teachers were carefully selected and philosophically aligned. Significant shifts in CLASS ratings resulted. Implementation of the Project Approach as a curriculum element predicted higher CLASS scores, suggesting that the coaching was enhanced when teacher-child interactions were more closely connected to classroom curriculum.

The addition of the Project Approach as a curriculum element created a congruence between teaching and coaching practices. Teachers and children investigated interesting and worthwhile topics together. Teachers and coaches researched instructional practices and interactions in an effort to promote children’s higher-order thinking. The coaches and consultant strengthened our community of practice by inquiring together into effective strategies for supporting professional development.

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Appendix 1

Appendix 1

Coach and Teacher Demographics

Variable	Teachers		Coaches	
	Number	%	Number	%
Education				
Less than a bachelor's	8	38	1	7
Bachelor's degree	9	43	5	36
More than a bachelor's	4	19	8	57
Certification				
Yes	8	38	5	36
No	13	62	9	64
Certification Type				
EC or EC/Elementary	4	50	2	33
Other	4	50	3	67
Years in Early Childhood				
1-10 years	7	33	1	14
11-20 years	6	29	6	50
21 or more years	7	33	7	36
Unknown	1	4	0	0
Race				
Black	6	28	3	21
White	14	67	10	71
Hispanic/Latino	1	5	0	0
Other	0	0	1	7
Age				
24-35	5	24	1	7
36-47	5	24	6	43
48 or older	11	52	7	50

Appendix 2

Appendix 2

Comparison of CLASS Domains, Dimensions, and Indicators with Project Approach Fidelity Instrument

Emotional Support

CLASS Domains, Dimensions, and Indicators	Items on Project Approach Fidelity Form
Positive Climate	
Relationships Positive Affects Positive Communication Respect	No Equivalent
Negative Climate	
Negative Affect Sarcasm or Disrespect Punitive Control Severe Negativity	No Equivalent
Teacher Sensitivity	
Awareness Responsive Addresses Problems Student Comfort	11–14. The curriculum is built on children's prior knowledge, needs, interest, and home culture. 15–17. Experiences and materials accommodate a broad range of children's individual differences, home culture, and special needs.
Regard for Student Perspectives	
Flexibility and Student Focus	7. There is a balance between child-initiated and adult-supported learning.
Support for Autonomy and Leadership	25. There is high interest, engagement of children on project activities (talking, ownership).
Student Expression	
Restriction of Movement	

Classroom Organization

CLASS Domains, Dimensions, and Indicators	Items on Project Approach Fidelity Form
Behavior Management	
Clear Expectations Proactive Redirection of Misbehavior Student Behavior	No Equivalent
Productivity	
Maximizing Learning Time Routines Transitions Preparation	No Equivalent
Instructional Learning Formats	
Effective Facilitation Variety of Modalities & Materials Student Interest Clarity of Learning Objectives	1. Children and teachers have presented a history (story) of the inquiry that is clear to an audience (families, other children, co-workers, administrators, etc.). 2. The ongoing nature of the inquiry and concept development is captured in webs and graphic representations of thinking. 7. There is a balance between child-initiated and adult-supported learning. 8–10. Daily schedule allows children to have extended periods of time in which to engage in play, projects, and/or integrated curriculum activities. 15–17. Experiences and materials accommodate a broad range of children's individual differences, home culture, and special needs. 25. There is high interest, engagement of children on project activities (talking, ownership). 26. Artifacts are collected daily for children's portfolios.

Instructional Support

CLASS Domains, Dimensions, and Indicators	Items on Project Approach Fidelity Form
Concept Development	
Analysis and Reasoning Creating Integration Connection to Real World	2. The ongoing nature of the inquiry and concept development is captured in webs and graphic representations of thinking. 3. Initial questions for investigation are evident. 4. Evidence of children's revising questions and recording new inquiry is noted or displayed. 5. Explanations or reference to "experts" or resources of information (i.e., families, books, field trips, others) are evident. 8-10. Daily schedule allows children to have extended periods of time in which to engage in play, projects, and/or integrated curriculum activities. 11-14. The curriculum is built on children's prior knowledge, needs, interest, and home culture. 18. The curriculum integrates subject areas to help the children make meaningful connections and provide for rich conceptual development. 19. Teacher shares her thinking and uses phrases such as "I wonder____," "Have you thought about____?" "How can you show that?" "Why do you think that happened?" "Do you have a theory about that?" as vehicles for encouraging high levels of thinking. 22. To maximize the impact of literacy skills, teachers are continuously attentive to children being purposeful readers and writers. For instance, the teacher talks as she/he writes, draws children's attention to letters and words, and uses print as a vital tool during discussions. 24. Children and teachers pose and solve problems (define problems, make decisions, etc.). 26. Artifacts are collected daily for children's portfolios.
Quality of Feedback	
Scaffolding & Feedback Loops Prompts Through Process Providing Information Encouragement and Affirmation	1. Children and teachers have presented a history (story) of the inquiry that is clear to an audience (families, other children, co-workers, administrators, etc.). 4. Evidence of children's revising questions and recording new inquiry is noted or displayed. 20. In response to children's actions or queries, teachers share in their children's investigations by using such phrases as "Tell me more." "I am curious, how did you do that?" "Where could you go to find that out?" 22. To maximize the impact of literacy skills, teachers are continuously attentive to children being purposeful readers and writers. For instance, the teacher talks as she/he writes, draws children's attention to letters and words, and uses print as a vital tool during discussions. 26. Artifacts are collected daily for children's portfolios.
Language Modeling	
Frequent Conversation Open-Ended Questions Repetition and Extension Self and Parallel Talk Advanced Language	4. Evidence of children's revising questions and recording new inquiry is noted or displayed. 6. Teacher interactions and documentations reflect rich new vocabulary discovered in the process of inquiry. 21. Teachers promote extended conversations among and between children in small and large groups. 22. To maximize the impact of literacy skills, teachers are continuously attentive to children being purposeful readers and writers. For instance, the teacher talks as she/he writes, draws children's attention to letters and words, and uses print as a vital tool during discussions. 23. Within a communication context, the teacher helps children think about the listener or the viewer by asking: "How should we say this?" "What do you want to say first?" "Would that be clear?" 26. Artifacts are collected daily for children's portfolios.

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Alternative Pathways in Family Child Care Quality Rating and Improvement Systems

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Abstract

As research continues to underscore the positive impact high-quality early childhood programs have on young children, numerous states have implemented quality rating and improvement systems (QRIS) to measure and improve the services young children receive across a wide range of early learning settings. These state systems range from two to five levels with five levels being most common. While the overarching goal of all QRIS is to increase the quality of early learning and development services provided to children, state systems vary greatly in their design. At the time of this study, Illinois Quality Counts–QRS was a four-star system in which licensed family child care programs could follow one of two pathways to achieve a three-star level. One pathway involved achieving an average score of 4.25 on both the Family Child Care Environment Rating Scale–Revised (FCCERS–R) and the Business Administration Scale for Family Child Care (BAS). The second pathway required programs to achieve National Association for Family Child Care (NAFCC) accreditation status. This study, conducted in the fall of 2011, looked at the FCCERS–R and BAS scores of 31 NAFCC-accredited family child care programs participating in Illinois QRS at the three-star level and the likelihood of each program to qualify for a three-star level based on FCCERS–R and BAS scores without NAFCC accreditation. Data analysis revealed that only one program would have qualified for a three-star rating based on both FCCERS–R and BAS scores. The findings of this study suggest that the NAFCC accreditation pathway to a three-star level is not an exact proxy of program quality as measured by validated assessment tools such as the FCCERS–R and BAS.

Introduction

Numerous studies have linked high-quality child care programs with positive developmental outcomes for children, including better cognitive, language, and social functioning (Currie & Thomas, 1995; National Association of Child Care Resource and Referral Agencies, 2010; Peisner-Feinberg et al., 1999; Vandell & Wolfe, 2000). Unfortunately, the research has also found that many children, especially low-income children, receive low-quality care (Espinosa, 2002; Helburn & Howes, 1996; Karoly, Ghosh-Dastidar, Zellman, Perlman, & Fernyhough, 2008; Peisner-Feinberg et al., 1999).

The focus on the quality of child care over the past two decades has led researchers, practitioners, and policymakers across the United States to

design and implement statewide quality rating and improvement systems (QRIS). A state QRIS is a systematic approach to assessing, improving, and communicating the level of quality across various early care and education settings (Mitchell, 2005). A determination of program quality is based on a combination of structural and process measures including the learning environment, interactions, ratio and group size, program administration, and staff qualifications. Twenty-eight states currently have a QRIS, and a number of others are in the process of piloting their QRIS. While this suggests a national trend in recognizing the importance of assessing and improving quality in early childhood programs, states differ greatly in the design of their systems.

This study focused on licensed family child care, that is, regulated child care that is offered in a home setting. Of the 24 state QRIS that have standards for family child care, 19 include accreditation status from the National Association for Family Child Care (NAFCC) in their system, 21 include the Family Child Care Environment Rating Scale–Revised (FCCERS–R), and 8 include the Business Administration Scale for Family Child Care (BAS).

States use these measures in a variety of ways. Some states conduct formal assessments using the FCCERS–R and/or the BAS with a threshold score (minimum) required at varying quality rating levels, while other states require only self-assessments. Some states use a combination of FCCERS–R and BAS scores along with NAFCC accreditation status; other states use accreditation status as an alternative pathway or proxy to achieving a threshold score on one or both of the assessment tools.

At the time this study was conducted, in the fall of 2011, Illinois administered a voluntary quality rating system, Illinois Quality Counts–QRS, composed of four star levels.¹ Star-rating levels for licensed family child care included measures of quality addressing the learning environment, program administration, provider qualifications, and professional development. Each star level within the system built on the requirements of the star level before it with the exception of the three-star level, where current NAFCC accreditation served as an alternative pathway to achieving the three-star rating (Illinois Network of Child Care Resource and Referral Agencies, n.d.-c). For licensed family child care programs in Illinois, a three-star rating could be reached in two ways: 1) the program received a rating of 4.25 on both the FCCERS–R and the BAS, or 2) the program demonstrated current accreditation in good standing through the NAFCC (Illinois Network of Child Care Resource and Referral Agencies, n.d.-c).

Limited research has examined state QRIS models for family child care programs (Barnard, Smith, Fiene, & Swanson, 2006; Norris & Dunn, 2004; Zellman & Perlman, 2008). Some research (e.g., Barnard et al., 2006; Norris & Dunn, 2004) was conducted concerning the validity of state systems that used measures of classroom quality as well as accreditation status to determine ratings. These studies, however, used the Family Day Care Environment Rating Scale (FDCERS), published in 1989, which was

substantially revised in 2007 and replaced with the current Family Child Care Environment Rating Scale–Revised (Harms, Cryer, & Clifford, 2007).

In commenting on the ways in which quality components are weighted in QRIS, Zellman and Perlman (2008) state, “Some states simply decide to assign equal points to each component, because there is no empirical basis for differentiation. Once points are assigned, some system designers come up with ‘best guesses’ concerning where to cut scores in assigning the rating” (p. 40). Research is needed that looks specifically at the alignment of NAFCC accreditation, the FCCERS–R, and the BAS within state QRIS. Doing so will provide states with empirical evidence to support the weight given to accreditation status in QRIS and to help define valid threshold scores for FCCERS–R and BAS assessments.

The purpose of this study was to determine if Illinois family child care assessment and accreditation pathways to the three-star level represented empirically equal measures of quality in Illinois Quality Counts–QRS and, further, to examine the relationships between the three measures used to determine quality in licensed family child care programs participating in the Illinois QRS model: FCCERS–R, BAS, and NAFCC accreditation.

Issues Related to Quality in Early Care and Education

The Case for Measuring Quality

Research suggests that the level of quality in early care and education settings varies greatly. Unfortunately, much of that research also suggests that the majority of children are in settings considered to be less than adequate in quality (Espinosa, 2002; Helburn & Howes, 1996; Peisner-Feinberg et al., 1999). To date, numerous studies have demonstrated both the short- and long-term benefits of high-quality early childhood education. Positive educational outcomes have been found in multiple studies (Peisner-Feinberg et al., 1999; Vandell et al., 2010) in which participation in high-quality early care and education programs has been associated with better performance on intelligence, language, and school achievement tests; less grade retention; decreased high school dropout rates; and decreased use of special education services. Longitudinal studies that have followed participants into adulthood have found significant links between attending high-quality early education programs and more stable living arrangements, higher income, reduced use of drugs, and less criminal activity over the participant’s life span (Reynolds, Temple, Robertson, & Mann, 2002; Schweinhart, 2005; Yoshikawa, 1995). Both the short- and long-term benefits associated with high-quality early childhood programs make a strong case for supporting programs to increase their quality.

QRIS Standards and Accountability Measures for Family Child Care

In many states, QRIS is the primary vehicle for measuring and improving the quality of care and education that young children receive. All QRIS consist of at least five common elements: program standards, accountability measures, program and practitioner support, financial incentives, and parent and consumer education (Mitchell, 2005). Program standards and

accountability measures in family child care are examined more closely below.

Standards in quality rating and improvement systems differ to some degree from state to state but generally include commonly accepted or research-based indicators of program quality that have been linked to positive outcomes for children (Satkowski, 2009). Most states regulate child care through standards identified in their licensing systems. Although specific licensing standards differ from state to state, federal law requires every state to have standards that protect the health and safety of children in three areas: the prevention and control of infectious diseases, building and physical premise safety, and health and safety appropriate to the program setting (National Association of Child Care Resource and Referral Agencies, n.d.). Licensed status typically allows a program to meet the quality standards at the first level of a QRIS, with standards at the higher levels representing incremental increases in quality (National Association of Child Care Resource and Referral Agencies, 2010). In addition to licensing compliance, the majority of state QRIS that include family child care also include standards related to the child care environment, staff qualifications, family partnerships, accreditation, and administration and management (Tout et al., 2010).

Accountability measures, the ways in which quality standards are measured in family child care programs, differ from state to state. However, most states incorporate accreditation from the National Association for Family Child Care (NAFCC) and the Family Child Care Environment Rating Scale–Revised (FCCERS–R) as part of their state QRIS. States have also begun to include the Business Administration Scale for Family Child Care (BAS) into their systems to measure business and professional practices.

National Association for Family Child Care Accreditation. Attaining national accreditation is a voluntary process in which programs achieve accredited status by demonstrating evidence of meeting various standards of quality. In the United States, the National Association for Family Child Care (NAFCC) is the accrediting body for family child care programs. NAFCC accreditation includes 289 standards organized into five content areas: relationships, environment, developmental learning activities, safety and health, and professional and business practices (National Association for Family Child Care, n.d.-d). NAFCC accreditation is a four-step process consisting of application, self-study, observation, and decision phases. During the self-study phase, providers implement the quality improvements needed to meet NAFCC's standards. At the observation stage, a trained validator observes the program and verifies documentation. NAFCC requires providers to pass all of the required standards as well as a predetermined percentage of the remaining standards (National Association for Family Child Care, n.d.-a). In 2013, the fee for NAFCC accreditation ranged between \$800 and \$1,125 (National Association for Family Child Care, n.d.-b).

NAFCC accreditation is also used in several ways in state QRIS models. For the majority of states, achieving accredited status is a component at the

highest or second-highest level (National Association for Family Child Care, n.d.-c; Tout et al., 2010). Accredited status may be presented as the only requirement for a certain level or as one of multiple components needed to reach a specific QRIS level. In some states, application for or participation in the self-study stage of accreditation is included at lower rating levels and achieving accreditation status is recognized as the top level. Some states use accreditation status as an alternative pathway or proxy to achieve a specific quality level.

Family Child Care Environment Rating Scale–Revised (FCCERS–R). The FCCERS–R was designed to measure the quality of the learning environment in a family child care program. The tool includes 38 items that are rated during an observation in the family child care home. The 38 items are divided into seven subscales: space and furnishings, personal care routines, listening and talking, activities, interaction, program structure, and parents and provider (Harms et al., 2007). Each item is scored on a seven-point scale with a score of 1 considered inadequate, 3 considered minimal, 5 considered good, and 7 considered excellent. Item scores are aggregated to determine an overall quality score for a program (Harms et al., 2007). The FCCERS–R is used in state QRIS in a variety of ways. Many states require programs to reach a certain average score for a specific quality rating while others include both an average score and a “no score below” rule. A “no score below” rule requires that whatever the overall average, certain subscales or items should not fall below an identified score (Tout et al., 2010).

Business Administration Scale for Family Child Care (BAS). The BAS was designed to measure the quality of business and professional practices in family child care programs. The BAS consists of 10 items: qualifications and professional development, income and benefits, work environment, fiscal management, recordkeeping, risk management, provider-parent communication, community resources, marketing and public relations, and provider as employer (Talan & Bloom, 2009). Each item consists of three to five indicator strands that are rated during an interview with the provider. If the provider is not an employer as defined in the BAS, then item 10 (provider as employer) is considered nonapplicable. Following the interview, the quality ratings are verified through a review of the program’s documentation. Like the FCCERS–R, items are scored on a seven-point scale with a score of 1 considered inadequate, 3 considered minimal, 5 considered good, and 7 considered excellent. Item scores are aggregated to determine an overall score for the family child care program (Talan & Bloom, 2009).

According to McKelvey et al. (2010), “Strong leadership and well-informed administrative practices contribute to the global quality of the program, which supports child development” (p. 11). In some states, global quality is beginning to be viewed through this widened lens, with the result that administrative practices in family child care are measured by incorporating the BAS into QRIS (McCormick Center for Early Childhood Leadership, 2012a). The BAS is used in a variety of ways in QRIS, including formal assessments with threshold scores and self-assessments

and as part of state administrator credentialing initiatives embedded in QRIS models (McCormick Center for Early Childhood Leadership, 2012b).

Illinois Quality Counts–QRS for Licensed Family Child Care Programs

Illinois introduced its quality rating system in July 2007 as a voluntary QRS funded by the Illinois Department of Human Services (IDHS) that included center-based programs as well as licensed and licensed-exempt home-based programs. Licensed child care centers and licensed family child care homes were eligible to receive up to four stars. Illinois Quality Counts–QRS also included licensed-exempt family child care; however, licensed-exempt providers were eligible to achieve one of three-tiered levels based solely on participation in prescribed professional development training leading to the Level 1 ECE credential on the state’s early childhood career lattice (Illinois Network of Child Care Resource and Referral Agencies, n.d.-a).

The standard measures for licensed family child care included NAFCC accreditation status, the FCCERS–R, and the BAS. Licensed family child care programs were eligible to earn a three-star rating either by demonstrating NAFCC accreditation or by achieving an average FCCERS–R score of 4.25 and an average BAS score of 4.25 (Illinois Network of Child Care Resource and Referral Agencies, n.d.-c).

Prior to applying for Illinois QRS, all family child care providers were required to attend orientation training. This training introduced providers to the QRS and described the specific requirements involved at each star level and the available supports to help programs prepare for and earn stars (Illinois Network of Child Care Resource and Referral Agencies, n.d.-b). After completing the QRS orientation training, providers were required to attend training on the FCCERS–R. Providers applying for star level 3 or 4 were also required to attend training on the BAS.

Methods

This study examined the relationship between the three common accountability measures used in QRIS to assess quality in family child care homes: the FCCERS–R, BAS, and NAFCC accreditation.

Sample

The sample for this study consisted of 31 three-star rated family child care programs in Illinois QRS. The data for the programs came from two datasets. One data set included 18 programs. These programs had achieved a three-star rating and had made application to advance to level 4. The other data set consisted of 13 accredited three-star family child care programs that volunteered to be a part of the study. These programs were contacted from a public list of 35 three-star family child care programs participating in Quality Counts–QRS based on their accredited status.

Instrumentation

This study involved conducting a FCCERS–R assessment and a BAS assessment in each family child care program. NAFCC accreditation was

already established for all of the family child care programs included in this study.

The FCCERS–R is a valid and reliable observation tool used to measure the quality of the learning environment of family child care programs. Illinois Quality Counts–QRS did not include the FCCERS–R “Parents and Provider” subscale because providers’ professional practices are more thoroughly measured by the BAS. The BAS is a valid and reliable tool used to measure business and professional practices in family child care programs. Individual item scores are averaged to calculate a total BAS score.

Procedures

After a provider agreed to participate in the study, appointments were scheduled to complete BAS and FCCERS–R assessments. BAS assessments involved a one- to two-hour interview of the provider followed by a review of documentation to verify the assessment ratings. All BAS assessors were trained to reliability by the BAS national anchors and maintained inter-rater reliability of 85% or above throughout the study. BAS interviews were completed over the phone or in person depending on the preference of the provider. The review of documentation took place at the family child care program where the assessor verified the ratings obtained during the interview through a review of current documents (e.g., written policies, family handbook, parent-provider contract, and promotional materials) or observation of program practices measured in the BAS.

The FCCERS–R assessments were conducted by members of the Quality Counts–QRS assessment team. FCCERS–R assessments involved a three-hour observation followed by a 30-minute interview of the provider. Both the observation and interview took place at the family child care program when children were present. All FCCERS–R assessors were trained by the authors of the tool and maintained inter-rater reliability of 85% or above throughout the study.

Data Analysis

Data from the participating programs and the Quality Counts–QRS database were combined and descriptive statistics were used to examine average BAS and FCCERS–R scores for each program as well as variances between programs. Descriptive statistics were also used to determine the percentage of family child care programs that received scores of 4.25 or higher on both the FCCERS–R and the BAS, the percentage of programs that received a score of 4.25 on the FCCERS–R but not the BAS, and the percentage of programs that received a score of 4.25 on the BAS but not the FCCERS–R.

Programs were then categorized into star levels based on both the combination of their FCCERS–R and BAS scores as well as by FCCERS–R and BAS scores individually. This allowed for a descriptive analysis of the number of programs that would qualify for star levels 1 through 4 based on both tools individually or combined.

Additionally, a correlational analysis was conducted to discern the strength of the relationship between average FCCERS–R and BAS scores.

NAFCC does not report a program score, and this study did not include a control group of nonaccredited programs, so data analysis was limited in respect to inferential statistics.

Findings

Although there was a wide range in program scores for both the FCCERS–R and BAS, the average scores on both tools fell below the 4.25 thresholds required for three-star nonaccredited programs. As Table 1 demonstrates, the mean FCCERS–R score was 3.29 and the mean BAS score was 3.81.

Table 1

Table 1
Mean FCCERS–R and BAS Scores for Accredited Programs

Assessment	<i>M</i>	<i>SD</i>	Range
FCCERS–R	3.29	.61	1.67 – 4.47
BAS	3.81	1.03	2.30 – 5.89

Table 2 shows the FCCERS–R and BAS threshold scores that were required to achieve all four of the star level ratings within Illinois Quality Counts–QRS. A threshold BAS score was required only at star levels 3 and 4, so star ratings for levels 1 and 2 are determined solely by a program’s FCCERS–R score.

Table 2

Table 2
FCCERS–R and BAS Threshold Scores Required for Each Star-Level

Star Rating	FCCERS–R Score	BAS Score
1	3.00	N/A
2	3.50	N/A
3	4.25	4.25
4	5.00	5.00

Table 3 shows the number of programs that would have qualified for the various star-level ratings based on their combined FCCERS–R and BAS scores (representing the assessment pathway) as well as FCCERS–R score alone and BAS score alone. As noted in this table, the data revealed that if these programs were awarded a star-level based on FCCERS–R and BAS scores, only 1 program would have qualified for a three-star rating; 13 programs would have qualified for a two-star rating; 11 programs would have qualified for a one-star rating; and 6 programs would not have qualified for any star rating. None of the programs in the sample would have qualified for a four-star rating based on composite scores for both tools.

Table 3

Table 3
Frequency of Star-Level Ratings Based on Assessment Scores

QRIS Star	Combined Scores	FCCERS–R Score Alone	BAS Score Alone
No Star	6	6	20
1 Star	11	11	0
2 Star	13	12	0
3 Star	1	2	8
4 Star	0	0	3

Note: Because Illinois only requires a BAS score at the three- and four-star levels, programs that did not achieve a BAS score of 4.25 or higher were categorized based solely on their FCCERS–R score.

A correlational analysis was conducted between FCCERS–R scores and BAS scores. The value of the Pearson r was .35 ($p < .05$), indicating a moderate but significant relationship between the two program assessment tools.

Discussion

As the early childhood field moves forward in implementing and refining quality rating and improvement systems, research is needed to evaluate the validity of various system components. Without research examining the relationship between instrument scores and accreditation status, no empirical evidence exists to guide policymakers in the design and refinement of the criteria that define a state’s differentiated levels of program quality.

The purpose of this study was to determine if the family child care assessment and accreditation pathways to the three-star level of quality in the Illinois QRS model represented empirically equal measures of quality.

While the FCCERS–R, BAS, and NAFCC accreditation are all well-known measures of quality, the results of this study indicate that the assessment and accreditation pathways were not empirically equal. Specifically, if the accredited family child care programs in this study had been required to achieve their three-star rating through the assessment pathway, only one program would have qualified.

These findings underscore the importance of a clear rationale for the use of alternative pathways to achieving a quality rating in QRIS. Policymakers should be clear if alternative pathways stand as distinct yet aligned measures of quality or whether being accredited is in fact a proxy for threshold scores.

This study does not suggest that any one pathway represents a superior measure of quality. Each measure of quality examined in this study is associated with advantages and disadvantages. Despite the fact that only one of the accredited family child care programs in this study met the 4.25 threshold score needed to achieve a three-star level through the assessment pathway, all of the programs in the sample demonstrated commitment to continuous quality improvement. It is common practice, and may also be good policy, for states to recognize accreditation status in lieu of achieving threshold scores on quality assessment tools. This approach acknowledges there are multiple pathways to improving program quality, recognizes the substantial investments made by programs to improve their quality through self-study and on-site verification, and saves states the expense of conducting reliable assessments in accredited programs.

Limitations and Suggestions for Future Research

Caution should be used when generalizing the results of this study. The study was conducted on a small sample of licensed family child care programs in Illinois that met specific criteria. Only programs that had attained a three-star rating in the Illinois Quality Counts–QRS through NAFCC accreditation were included, and as a requirement of their participation in the QRS, all had completed training on the FCCERS–R and the BAS. Additional research is needed looking at accountability measures used to improve the quality of family child care programs through QRIS. Specifically, studies are needed in other states examining the relationship between assessment thresholds and alternative pathways to quality in QRIS. Lastly, qualitative research looking at family child care providers' perceptions of the QRIS and their motivations for participation, particularly through accreditation, might provide policymakers with information regarding ways to increase QRIS participation and better support quality improvement.

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Note

1 The Illinois Quality Counts–Quality Rating System was launched in 2007. Effective July 2013, Quality Counts–QRS became ExceleRate Illinois QRIS. This change reflects an increased emphasis on program improvement

(the “I” in QRIS) to enhance the learning and developmental outcomes for young children. The new cross-sector system includes early childhood programs in schools and centers. Programs in licensed family child care homes will be included in the new system in 2015.

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Predictors of School Readiness in Literacy and Mathematics: A Selective Review of the Literature

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Abstract

This paper presents findings from a selective review of the literature related to predictors of school readiness in literacy and mathematics. School readiness was defined as what children are expected to know and do in a variety of academic domains and processes of learning prior to entering a formal classroom setting. Seven themes emerged, based on a review of selected empirical research published over a sixteen-year period. Twenty-four predictors of success for school readiness were categorized under these themes. Implications for practice and recommendations for future research are presented.

Introduction

Young children are increasingly entering academically rigorous school settings where an emphasis on accountability and standards has replaced an emphasis on child development. However, many young children enter school unprepared for both academic and social expectations. Research suggests (Aunola, Leskinen, Lerkkanen, & Nurmi, 2004) that if students enter kindergarten at a disadvantage, early gaps in understandings of literacy or mathematics tend to be sustained or widened over time; this appears to be particularly true for children of poverty (McLoyd & Purtell, 2008). It is imperative for the field to identify strategies that move young children toward becoming independent and reflective learners, to increase the likelihood of their school success in later years.

In order to achieve this vision, we must first identify the specific characteristics or factors that enable certain children to enter formal schooling at an advantage while others enter at a disadvantage. Since the 1950s, researchers have investigated how external factors can influence or predict student success in school, and particularly school readiness (Milner, 1951), but a comprehensive list of factors that may affect cognitive, social, emotional, or language development in the school-age years has yet to be compiled. This literature review focuses on school readiness in the areas of literacy and mathematics. Its purposes are to provide stakeholders such as parents, caregivers, and teachers with insight into factors that research has identified as possibly contributing to children's successful entry into formal schooling and to enable them to identify whether particular children are affected by these factors.

Many definitions of school readiness can be found in the research literature. For some, school readiness relates to students' cognitive abilities (Nobel, Tottenham, & Casey, 2005). For others, readiness is more related to maturational, social, and emotional domains of development (Ray & Smith, 2010) or to whether or not students have the tools necessary to work effectively in a classroom setting (Carlton & Winsler, 1999). For the purposes of this study, school readiness was defined as children's preparedness for what they are expected to know and do in academic domains and processes of learning when they enter a formal classroom setting. Rather than focusing on specific activities such as counting to ten or saying the alphabet, this definition considers such components as children's social-emotional characteristics, cognitive processes related to conceptual understanding, and their ability to communicate about their understandings.

Methods

A systematic review of the literature was conducted over three months during the spring of 2011. The question guiding the literature review was: What predictors of school readiness in mathematics and literacy have been identified by empirical research in education?

Data Collection and Analysis

The research team determined parameters for conducting searches by first examining already published literature reviews or meta-analyses relating to early childhood literacy or mathematics and relating to issues of school readiness. Four criteria emerged for articles to be included: (1) publication after 1995; (2) publication in a reputable peer-reviewed journal; (3) grounding in empirical research; and (4) use of rigorous research methods. These criteria are similar to those used in examples found in the preliminary review of the literature (Justice, 2003; La Paro & Pianta, 2000); however, many previous analyses were limited to large scale quantitative studies. During the preliminary review, meta-analyses of this literature published in 1995 or before were identified (Bus, Ijzendoorn, & Pellegrini, 1995). Therefore, this literature review focused on research following those publications to determine if any changes have occurred.

Having established parameters, the research team searched the literature to compile articles relevant to the research question. Both criterion and snowball sampling methods were used to identify literature. For criterion sampling, the research team conducted electronic searches of a variety of databases and search engines to identify articles that met the established parameters. Snowball sampling involved examining reference sections from theoretical articles related to school readiness, school achievement, early childhood mathematics, and early childhood literacy to find empirical research relevant to the research question. Snowball sampling was also conducted on the reference sections for each empirical study identified in the review to determine if additional sources could be included.

Finally, the research team conducted preliminary readings of the articles to obtain an overall understanding of the data. Following this analysis, articles were clustered based on similarity of findings. After clustering,

articles underwent a secondary analysis to establish predictors of school readiness in mathematics and literacy.

Results

In general, literature relating to predictors of success in early childhood literacy was more prevalent than literature relating to early childhood mathematics. Therefore, more predictors of success relating to literacy were identified in this review. It is likely then that the findings do not encompass all potential predictors of school readiness in mathematics.

Seven themes emerged from the literature review regarding factors associated with school readiness in mathematics and literacy: (1) child care experience; (2) family structure and parenting; (3) home environment; (4) learning-related skills; (5) social behavior; (6) mathematical and literacy-based tasks; and (7) health and socioeconomic status. The sections that follow describe findings relating to each of these themes.

Child care experience. Several studies reviewed noted correlations between children's exposure to high-quality child care and their performance on measures of school readiness in literacy and mathematics. In a longitudinal study conducted by the NICHD Early Child Care Research Network (2002), participation in high quality, center-based child care was associated with higher language performance (NICHD, 2002). However, increased time spent in child care did not increase language performance, and a higher number of hours spent in child care was associated with increased behavior problems, as reported by caregivers (NICHD, 2002).

Ramey and Ramey (2004) reported the results of multiple randomized controlled trials investigating experiences in preschool education and their connection to school readiness. The authors identified seven types of experiences that are "essential to ensure normal brain and behavioral development and school readiness" (2004, p. 474). These experiences should: "(1) encourage exploration, (2) mentor in basic skills, (3) celebrate developmental advances, (4) rehearse and extend new skills, (5) protect from inappropriate disapproval, teasing, and punishment, (6) communicate richly and responsively, and (7) guide and limit behavior" (Ramey & Ramey, 2004, p. 474).

The authors indicate that children's exposure to high-quality child care built around these types of experiences can better prepare children for school. Magnuson and colleagues (2004) also examined the relationship between quality of care and school readiness and, in particular, how different types of preschool experiences may affect children of economically advantaged and disadvantaged families. Child care was categorized as parental care, center-based care, Head Start, or other non-parental care. Using a sample from the Early Childhood Longitudinal Study, Kindergarten Class (ECLS-K), the authors found that children who attended center-based programs before kindergarten performed better in math and reading than children who experienced only parental care. Having attended center-based programs was associated with greater benefits for children from "disadvantaged" families than for those with higher economic status, including enhancement of mathematics performance (Magnuson, Meyers, Ruhm, & Waldfogel, 2004).

High quality child care was not always defined in the literature reviewed for this study, but some of the literature did examine aspects of high-quality care. Klein, Starkey, Clements, Sarama, and Iyer (2008) examined the effects of a preschool mathematics curriculum on children's levels of school readiness. Their findings suggest that use of high-quality curricula implemented with fidelity can lead to higher levels of school readiness in mathematics (Klein, Starkey, Clements, Sarama, & Iyer, 2008). Bracken and Fischel (2007) examined the impact of a supplementary literacy-based curriculum on Head Start preschoolers' mathematics and literacy achievement and social and behavior skills. More students displayed positive behavior and social skills when engaging with the supplementary curriculum; these skills were associated with higher levels of performance on literacy tasks (Bracken & Fischel, 2007). Characteristics of instruction have also been considered in determining child care quality. Chien and colleagues (2010) investigated the types of engagement young children could encounter in child care settings (free play, group or individual instruction, and scaffolded learning). Children in settings with more free play showed smaller gains than their peers on literacy and mathematics indicators at the preschool level. Individual instruction tended to be a stronger predictor of success on preschool assessments (Chien, Howes, Burchinal, Pianta, Ritchie, Bryant, Clifford, Early, & Barbarin, 2010). However, that study focused only on the types of engagement as predictors of achievement success and did not discuss the potential positive implications of free play and group instruction on other domains of development.

Parenting Style and Family Structure. Parenting styles, parent and child relationships, and family structure were considered as factors potentially related to school readiness in some of the studies in this literature review. Hill (2001) examined the relationship between parenting styles and kindergarten children's school readiness in African-American and Euro-American families with comparable socioeconomic status. Maternal warmth or acceptance was found to be positively related to children's performance on a pre-reading measure, while "short temper" and lack of patience were associated with lower scores. Also positively related to children's performance were teachers' perception of the extent to which parents valued education, and the quality of parent involvement (high quality was characterized by primarily parent-initiated involvement; lower quality by primarily teacher-initiated parent involvement). Mothers' expectations for grades were positively related to children's performance on the pre-reading measure. Hill (2001) also compared parenting styles to kindergarten children's performance on a measure of quantitative concepts. Again, maternal warmth and high expectations for good grades were associated with higher scores on the pre-mathematics measure, while lack of patience was connected to lower scores. However, no significant relationship was found between children's performance and teacher-parent contact; the teacher-parent relationship alone did not predict better performance.

Wu and Qi (2006) examined the relationship between parenting styles and African American children's achievement in the areas of reading, math,

and science. They found that parents' perceptions of children's abilities and expectations for good grades were strong predictors of success for students at all grade levels. These predictors were just as strong as parents' socioeconomic status (Wu & Qi, 2006). While parental involvement is commonly cited in the literature as a strong predictor of success, in this study, parental involvement was not shown to have a large impact on student achievement. Wu and Qi (2006) reported that their study "found limited positive effects of school-based parental involvement and, in addition, some negative effects of home-based parental involvement on achievement test scores" (p. 426). Lahaie (2008) found parental involvement to be a predictor of success for children of immigrants; that study's analysis of data from the ECLS-K indicated a correlation between higher levels of parental involvement and young children's higher proficiency in English and mathematics.

Family structure has also been cited as an important predictive factor relating to school readiness in mathematics and literacy. For example, Entwisle and Alexander (1996) investigated the relationship between children's literacy and mathematics school readiness and parent configuration, or family type, in a random sample of Baltimore children. Mothers who were single parents were found to have lower expectations for their children's grades in both reading and mathematics than mothers in two-parent families. However, regardless of family type, children in families with greater economic resources and who had a parent or parents with high expectations for success "consistently outperformed other children in reading and math" (Entwisle & Alexander, 1996, p. 341).

Home Environment. The research literature on school readiness includes several studies of the relationship between daily home activities and school readiness. Clarke and Kurtz-Costes (1997) examined the educational quality of the home environment and the influence of television-watching on readiness. They interviewed children and caregivers of low-income, African-American families and compared these data to school readiness assessments. Negative correlations were found between the amount of time spent watching television and number of books in the home, and between television viewing time and amount of parent-child instructional interactions. More television viewing time also predicted lower scores on readiness assessments (Clarke & Kurtz-Costes, 1997). Wright and colleagues (2001) investigated the relations between young children's television viewing experiences and their performance on tests of school readiness and vocabulary. Television programming was divided into 4 categories: (1) child-audience, informative or educational; (2) child-audience, fully animated cartoons with no informative purpose; (3) child-audience, other programs (neither of the above); and (4) general-audience programs. According to the authors, "for very young children [2-3], viewing informative programming designed for children was associated with subsequent letter-word skills, number skills, receptive vocabulary and school readiness" (Wright, Huston, Murphy, St. Peters, Pinon, Scantlin, & Kotler, 2001, p. 1361). The authors found this difference to be stable across the study; young children who frequently watched educational television at

ages 2 and 3 performed better on a battery of tests at age 3 than did infrequent viewers. However, children who were frequent viewers of non-educational cartoons or general-audience programs at ages 2 and 3 had lower scores than infrequent viewers.

A longitudinal study of children's reading abilities and the literacy environment in the home (Burgess & Hecht, 2002) found that the home literacy environment (HLE) was significantly related to young children's oral language ability, word decoding ability, and phonological sensitivity. The authors define the home literacy environment in two ways: (1) Passive HLE, or "those parental activities that expose children to models of literacy usage (e.g., seeing a parent read a newspaper)" (2002, p. 413), and (2) Active HLE, or, "those parental efforts that directly engage the child in activities designed to foster literacy or language development (e.g., rhyming games, shared readings)" (2002, p. 413). In a study in the Netherlands, Leseman and de Jong (1998) examined three issues related to home literacy: the potential influence of affective factors, such as cooperation, co-construction, or social-emotional constructs; the influence of contextuality, or cultural or social background factors; and causality, the impact of home literacy on language development. They found that home literacy environment factors determined children's school literacy achievement when controlling for confounding factors. Their findings suggest that combining exposure to literacy in the home with co-construction opportunities increased the predictive value of home literacy in relation to early literacy achievement.

Learning-related characteristics. "Learning-related characteristics" include children's behaviors and dispositions related to engaging in tasks as well as their strategies for completing tasks. McClelland, Morrison, and Holmes (2000) studied the relationship between work-related social skills and student performance in kindergarten classrooms and again in second grade. Examples of children's work-related social skills included the ability to follow directions, take turns in group activities, and stay on task. When child demographic information (e.g., IQ, entrance age, ethnicity, parental education level, and home literacy environment) was controlled, findings showed that work-related skills contributed to children's academic success in mathematics. Children with poor work-related skills performed significantly worse in mathematics upon school entry and at the end of second grade (McClelland, Morrison, & Holmes, 2000). McClelland, Acock, and Morrison (2006) later examined the influence of learning-related skills in kindergarten on academic math and reading success in elementary school. In this study, the math and reading abilities of children rated as having poor learning-related skills were compared to children rated as having high learning-related skills. Findings suggested that learning-related skills such as self-regulation and social competence predicted math and reading achievement between kindergarten and sixth grade. These effects were strongest between kindergarten and second grade but were still significant through sixth grade (McClelland, Acock, & Morrison, 2006).

Social behavior. Connections between school readiness and children's temperament, or the innate aspects of their personality, have been addressed

in the research literature. A child's tendency to display characteristics such as being active or sociable may be correlated with school readiness; Chang and Burns (2005) examined the connection between temperament and attention skills for children attending Head Start. Findings from their multiple regression analysis indicate that temperament and motivational development are related to levels of attention in young children, similar to findings from research conducted with older children (Chang & Burns, 2005).

Konold and Pianta (2005) examined the predictive value of particular cognitive processes and social behaviors related to self-regulation on typically-developing children's kindergarten and first grade achievement. The authors developed six normative profiles of patterns of school readiness: (1) attention problems; (2) low cognitive ability; (3) low-to-average social and cognitive skills; (4) social and externalizing problems; (5) high social competence; and (6) high cognitive ability and mild externalizing (Konold & Pianta, 2005). Findings suggest that cognitive ability and social skills should be considered predictors of school readiness, and that although these factors are interrelated, they can operate independently of each other in terms of their predictive value. For example, children with high cognitive abilities performed better on achievement measures, regardless of social skills, while students with average cognitive ability and higher social competence also tended to perform at higher levels than did those with average to low cognitive ability and average social competence (Konold & Pianta, 2005).

Normandeau and Guay (1998) investigated the relationship between cognitive self-control and prosocial behaviors such as collaboration and effective communication in kindergarten-age children. Cognitive self-control was correlated with increased student achievement, which was evidenced when following these children to the end of first grade. Aggressive behaviors were negatively correlated to cognitive self-control while prosocial behaviors had a positive correlation. Children who displayed more aggressive behaviors tended to have less self-control when attempting to complete school tasks, which led to poorer student achievement (Normandeau & Guay, 1998). Dobbs and colleagues (2006) examined the relationship of prosocial behaviors to mathematics skills in preschoolers. The authors found that when students participated in an early math intervention, which consisted of over 85 mathematical tasks that their teachers could select to implement, they were less likely to display negative behaviors such as aggression or a lack of attention.

Performance on mathematical and literacy-based tasks. Correlations between young children's readiness-related literacy and mathematics skills and their experience with mathematics- and literacy-based tasks were explored in some of the literature reviewed during this study. Tasks might include such activities as examining concepts about print (literacy) and playing number games or block building (mathematics). Siegler and Ramani (2008) examined the role that playing numerical board games could play in preparing children in low-income families for school. They found that the numerical ability of children from affluent families was significantly higher

than the numerical ability of children from impoverished families; however, the gap between groups in terms of their understanding of numerical magnitude was closed as a result of the intervention (Siegler & Ramani, 2008). Following this study, Ramani and Siegler (2008) sought to determine if playing linear numerical board games had an impact on a broader range of mathematical topics and whether this impact was stable over time by exploring informal board game play in the home environment (Ramani & Siegler, 2008). They reported the positive connection between informal board game play in the home environment and numerical ability. Playing card games and video games did not have the same results (Ramani & Siegler, 2008).

Building spatial sense through block play has also been considered as a potential predictor of success in terms of school achievement in the elementary years and beyond. Hanline, Milton, and Phelps (2009) examined the relationship between block play at the preschool level and later school success in math and reading. Although no significant relationships were identified in this study between block play and later math achievement, a significant relationship was identified between block play and later reading ability. Higher levels of sophistication in young children's representations through block construction correlated with greater success in reading during the early elementary years (Hanline, Milton, & Phelps, 2009). While block play may not be a predictor of mathematics success at the early elementary level, it has been found to be a predictor of success for later school achievement in mathematics. Wolfgang, Stannard, and Jones (2001) reported the positive predictive relationship of levels of preschool block play (as determined by the Lunzer Five Point Play Scale) and mathematics achievement during middle and high school. Similar findings were reported regarding construction-type play with LEGOs and later school achievement (Wolfgang, Stannard, & Jones, 2001).

Health and socioeconomic status. Characteristics of child and parent health have long been cited in the literature as possible correlates of children's school readiness, and are sometimes included as confounding variables when authors are attempting to identify alternative predictors (such as child care or parent-child interactions). Janus and Duku (2007) examined five constructs they identified as having a potential impact on school readiness: (1) socioeconomic status, (2) family structure, (3) parent health, (4) child health, and (5) parent involvement. Their Early Development Instrument, an assessment of school readiness, was built around these five factors in an effort to determine which of the five factors would be most relevant in predicting school readiness. Based on this assessment, health (including current health and low-birth weight) and gender of the child (boys are twice as likely to struggle with school readiness compared to girls) were the strongest predictors. In addition, children from low-income families were twice as likely to have difficulty with school readiness as children from middle- or high-income families.

Patrianakos-Hoobler and colleagues (2009) also examined risk factors related to health of premature infants in relation to the children's eventual school readiness. They found that boys born premature were twice as likely

as girls to display lower school readiness levels. Lower readiness was also identified for premature “infants born to black mothers” as compared to “infants born to nonblack mothers” (Patrianakos-Hoobler, Msall, Marks, Huo, & Schreiber, 2009, p. 4). Socioeconomic status emerged as the “strongest barrier to achieving school readiness” (Patrianakos-Hoobler, et al., 2009, p. 5).

Low socioeconomic status has been consistently negatively correlated to school readiness in the research literature. In 1997, Stipek and Ryan studied the cognitive differences and motivation of economically advantaged and disadvantaged children at school entry. Significant cognitive differences were found relative to number skills, problem solving, and memory. Economically disadvantaged children had as much motivation for learning as economically advantaged children. However, economically advantaged children showed higher levels of concern regarding performance and decreased levels of enjoyment as the study progressed (Stipek & Ryan, 1997).

Discussion and Recommendations

Definitions of school readiness have long been under contention, and it is unclear whether the view that students should be ready for school rather than schools being ready for children is developmentally appropriate. This systematic review of empirical research literature published after 1995 and before 2013 identified seven themes for which correlates of school readiness could be categorized. Table 1 describes the 24 predictors that were categorized under each of these themes.

Table 1

Predictors of school readiness in literacy and mathematics

Predictor of school readiness	Brief Description
High quality child care environment	Not always defined in the literature, but an environment that tends to include variety of spaces for play, materials to encourage exploration, and opportunities for discourse, in addition to high-quality curriculum and instruction (NICHD, 2002; Ramey & Ramey, 2004).
High quality child care curriculum	Lessons designed to allow teachers to scaffold students as they engage in tasks designed to build understanding in literacy and math (Bracken & Fischel, 2007; Klein et al., 2008).
High quality child care instruction	Practices that encourage children's investigations of ideas with teachers acting as facilitators and encouraging communication and representation (Chien et al., 2010).
Type of child care	Typically defined as parental care, center-based care, Head Start, or other non-parental care. High-quality center-based care has been shown to be a predictor of success (Magnuson et al., 2004).
Less time in child care	Although exposure to high quality care has led to increase school success, prolonged exposure to child care has been identified as a risk factor, although it is unclear what amounts to excessive time (NICHD, 2002).
Quality of parent-child interactions	Establishing communication between parents and children where both parties are actively involved (discussions rather than parents yelling or telling children what to do) has been established as a predictor of success (Hill, 2001).
Maternal warmth	Mothers displaying high levels of warmth and encouragement towards children has been established as a predictor of success (Hill, 2001).
Parent patience	Parents displaying high levels of patience with children has been identified as a predictor of success (Hill, 2001).
Perceptions of child's ability	Parents displaying positive perceptions of their children's abilities (feel that children will be successful) has been established as a predictor of success (Entwisle & Alexander, 1996; Wu & Qi, 2006).
High expectations for good grades	Parents who communicate the expectation that their children will achieve at a high level has been established as a predictor of success (Entwisle & Alexander, 1996; Hill, 2001; Wu & Qi, 2006).
Parent involvement	Although findings have been mixed, some studies have identified high levels of parent involvement in both the school environment and the home environment as a predictor of success (Lahaie, 2006).
Limited television viewing	Prolonged exposure to non-educational television is considered a risk factor. However, exposure to educational television for a short time can be a predictor of success. In addition, encouraging children to explore media (for example, making videos) can increase student success (Clarke & Kurtz-Costes, 1997; Wright et al., 2001).
Positive home literacy environment	Creating a home environment where children are exposed to and encouraged to explore literacy materials (books, pictures, newspapers, etc.) with parents can be a predictor of success (Burgess & Hecht, 2002).
Shared story book reading	Teachers and parents engaging in story book reading with children where books are starting points for discussion, exploration, and elaboration has been established as a predictor of success (Burgess & Hecht, 2002; Leseman & de Jong, 1998).
Parent literacy practices	Parents who display high levels of literacy practices (reading books/newspapers, having discussions, telling stories or making rhymes) has been identified as a predictor of literacy success (Burgess & Hecht, 2002).
Positive work-related social skills	Positive work-related social skills including the ability for children to follow directions, take turns in group activities, and stay on task have been established as predictors of school success (McClelland, Morrison, & Holmes, 2000).
Positive learning-related skills	Positive learning-related skills such as motivation, dispositions towards content, self-regulation, and social competence have been established as predictors of success (McClelland, Acock, & Morrison, 2006).
Prosocial behavior	Prosocial or positive social behaviors could include possessing self-control, initiating communication, or acting open and friendly. These types of behaviors have been established as predictors of success (Dobbs et al., 2006; Konold & Pianta, 2005; McClelland, Acock, & Morrison, 2006; Normandeau & Guay, 1998).
Positive temperament	Children displaying positive dispositions or temperaments (their natural state—i.e., calm, open, friendly) has been identified as a predictor of success (Chang & Burns, 2005).
Positive attachment patterns	Children displaying positive attachment patterns to parents/caregivers/teachers has been established as a predictor of success (Konold & Pianta, 2005).
Playing board games	Playing linear type board games where counting is required has been established as a predictor of success. These games should be implemented in both home and school environments (Ramani & Siegler, 2008; Siegler & Ramani, 2008).
Focus on counting and number sense	Developing tasks that encourage children to use counting skills and begin to explore quantities and make comparisons has been linked to school success and later school achievement (Siegler & Ramani, 2008).
Engaging in block building	Construction activities that encourage children to build structures with blocks or LEGOs and engage in discussions about their buildings have been linked to later school achievement (Hanline, Milton, & Phelps, 2009; Wolfgang, Stannard, & Jones, 2001).
Focus on literacy concepts	Developing tasks that encourage phonological awareness, decoding, awareness of print, and letter identification can lead to higher levels of literacy success (Burgess & Hecht, 2002).

While the above table describes factors that hold potential for predicting young children's school readiness, risk factors were also identified in the literature. These factors include health risks such as low birth weight, prematurity, or general health issues, as well as demographic criteria such as gender (some studies have indicated that boys are more likely to struggle than girls), family structure (single mothers tend to have lower grade expectations for their children), maternal education level (not finishing high school) or the occupation of the head of household (due to the level of income associated with this occupation). In addition, low parental income or socioeconomic status and belonging to a minority group (including African American and Hispanic ethnicities) have often been identified as risk factors for school success.

Parents, caregivers, and teachers of young children as well as the children themselves are the primary stakeholders who would benefit from early interventions designed to enhance school readiness for young children. Initiatives focusing on building positive parent-child relationships and enhancing readiness-related aspects of the home environment have the potential to influence students' readiness and later school achievement. Future research is needed on the roles parents play in children's academic success. Specifically, little research can be found regarding parent involvement at the early childhood and primary levels and the influence of role models on children's positive behavior and dispositions relative to school readiness. Research on the home environment is also necessary, including the increasing role of digital technologies and how they may influence family dynamics and, in turn, children's future school success. Further investigations of the effects of implementing literacy- and mathematics-based tasks in the home, such as increasing math talk or encouraging children to build structures in a variety of shapes, may enhance what is currently understood about how home environments affect readiness.

Given the apparent correlation between child care quality and children's school readiness, initiatives to improve early childhood teacher quality and the overall quality of public and private child care programs could have the potential to promote children's school readiness in literacy and mathematics. The research identified in this review did not yield consistent definitions for high-quality child care. Future studies comparing types of child care settings could help to clarify what is high-quality care, considering such components as teacher quality and instructional practices, classroom environments, and curricula (e.g., presentation of mathematical and literacy-based tasks), and the longitudinal effects of such factors on student success.

The research included in this review was not consistent regarding types of assessments used to measure children's school readiness. Many studies indicated that an effective tool for measuring school readiness has yet to be developed (Kilday & Kinzie, 2009). Recommendations for future research include the development and validation of a school readiness assessment that measures constructs across domains of development. Once such an

assessment has been validated, it could be used for further investigation of the factors identified in this review.

Finally, initiatives specifically focused on young children could include interventions that enhance prosocial behaviors, motivation toward learning, and academic skills. Such interventions could occur in the context of the home, community, or child care setting. Some factors in school readiness and success that are specifically related to demographics (e.g., socioeconomic status, entrance age, belonging to a minority group) or health (e.g., birth weight) are difficult to isolate for the purposes of interventions that might enhance or reduce their influence on children's school readiness and success. Often these factors occur simultaneously with additional factors within the child, parent, or teacher as described above; thus, future research on ways that some predictors may mediate the effects of demographic or health-related risk factors could be particularly helpful to the field.

Given the importance attached to children's school readiness, any research that sheds further light on its components and processes is likely to enable adult stakeholders to better discern what constitutes the best possible environments and experiences for children. These environments and experiences can provide young children with the foundation for success on whatever paths they choose in the future.

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Kindergarten Readiness and Preschools: Teachers' and Parents' Beliefs Within and Across Programs

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Abstract

This qualitative interview-based study compares beliefs about kindergarten readiness and about the roles of preschools in readiness among parents and preschool teachers in three early childhood programs in the northeastern and southwestern United States. Interviews focused on beliefs concerning meanings of kindergarten readiness and the role of preschool in preparing children for kindergarten, and on resources participants used to inform their beliefs and practices about children's readiness for kindergarten.

Participants in all programs and geographic locations identified the primary purpose of preschool to be kindergarten preparation. While teachers and parents generally expressed support for play in the preschool curriculum, parents were more likely to cite specific skills as indicators of readiness. Within-program and across-program beliefs indicated shared perceptions of readiness linked to social and emotional development, attainment of literacy skills, and familiarity with school routines. Parents expressed anxiety regarding kindergarten transitions and expectations. Teachers believed that their programs prepared children for kindergarten, but were unsure if parents shared those beliefs. Responses differed across programs regarding the degree of parental responsibility for readiness, the efficacy of delayed kindergarten entry, and knowledge of local kindergarten expectations. Recommendations for practice include prioritizing communication about kindergarten readiness among teachers and parents, such as sharing information and concerns about assessments and local kindergarten expectations.

Introduction

The establishment of public prekindergarten programs throughout the nation (Barnett, Epstein, Friedman, Sansanelli, & Hustedt, 2009) indicates the priority of kindergarten readiness as a goal of national, state, and local educational policies (National Educational Goals Panel, 1997; Maine Department of Education, 2004; Texas Education Agency, 2008). As accessibility of public and private preschool programs increase, parents describe heightened awareness about preschools' roles in specific school preparation and readiness (Hatcher & Engelbrecht, 2006). In contrast,

preschool teachers traditionally address readiness through a developmental “whole child” approach (Copple & Bredekamp, 2009). Preschool teachers’ and parents’ ideas about readiness and preschools have been explored in a variety of contexts (Diamond, Reagan, & Bandyk, 2000; Kim, Murdock, & Choi, 2005). Because of the national impetus toward universal preschool for 4-year-old children (Pew Center on the States, n.d.), as well as a new focus on the continuum of PreK–Grade 3 education (Takanishi, 2010), comparison of parental and teacher beliefs within and across programs in diverse locations lends insight into both local and national shared readiness perceptions and preschool connections to K–3 education.

This qualitative, interview-based study examines parental and teacher beliefs about readiness and preschool roles in readiness in three programs in the northeastern and southwestern United States. Researchers explored these research questions: What are the beliefs of parents and preschool teachers concerning meanings of kindergarten readiness? What are the beliefs of parents and teachers about the role of preschool in preparing their children/students for kindergarten? What sources of information do parents and teachers use to inform their beliefs and practices about children’s readiness for kindergarten?

Literature Review

Teacher and Parent Beliefs about Readiness

Kindergarten readiness is a complex idea linked to multiple meanings and factors. Chronological age, developmental stage, specific academic and social skills, and home/school connections are associated with readiness. Local communities may offer different definitions of readiness (Graue, 1993, 2010). Roots of current definitions of readiness can be traced to the National Educational Goals Panel (1997), which declared a national priority for all children to enter school “ready to learn.” While readiness definitions increasingly include specific academic goals, a multidimensional view of readiness is still the basis for many state early childhood programs (Maine Department of Education, 2004; Texas Education Agency, 2008).

Beliefs about and perceptions of readiness form within the context of local communities surrounding children, schools, and families. An ecological view of readiness includes the interactive effects of particular environments - schools (both preschools and the receiving kindergartens), family activities, and child and community characteristics - described by Graue (1993) as “local meanings of readiness” (p. 37). Teacher beliefs are a crucial factor in determining practice, but empirical studies linking teacher beliefs to parent beliefs in the same settings are limited. The timing of school entry, for example, is closely tied to teacher and parent beliefs (McBryde, Ziviani, & Cuskelly, 2004). Kim, Murdock, and Choi (2005) noted that parent’ beliefs about kindergarten readiness varied; they also found few links between expressed beliefs and engagement in readiness-related at-home activities with children.

Preschools’ Roles in Readiness and Transition to Kindergarten

The primary focus of preschool education has shifted in recent years from experiential, play-based programs to a more academic model. Teachers and parents assume that a major outcome of preschool includes increased readiness of children for kindergarten in social/emotional and academic aspects. The increased academic demands of kindergarten (Goldstein, 2007) resulted in expectations that preschool children will enter kindergarten having some familiarity with print, letter and sound recognition, and beginning writing skills. The changing culture of kindergarten has given rise to significant questions about how preschool fits into children's overall school careers, and states have begun to create learning standards for preschool-age children. Currently, national educational policies focus on aligning preschools with K-3 programs (Wat, 2010).

Behaviors associated with kindergarten readiness include following rules and routines, taking turns, and communicating personal needs and feelings (Minnesota Department of Education, 2010). Despite recognition of the importance of children's transitions and adjustments to kindergarten (Graue, 2010; McBryde et al., 2004), teachers may receive limited training in transition practices (Early, Pianta, Taylor, & Cox, 2001).

Sources of Readiness Information

Early childhood educators have developed formal and informal assessment tools to evaluate readiness. Some programs rely on play-based instruments or observations (Long, Bergeron, Leicht Doyle, & Gordon, 2006) while others use tools based on broad learning domains (Augustyniak, Cook-Cottone, & Calabrese, 2004) or specific skill assessments (Brown & Mowry, 2009). Parents' and teachers' beliefs about kindergarten readiness influence their decisions about kindergarten enrollment, their choices of curricula, and their overall images of both preschools and kindergarten. Close examination of teachers' approaches to kindergarten readiness and of parents' and teachers' beliefs about readiness across programs, including comparisons of data from different areas of the United States, can inform development of locally relevant strategies and program adjustments that reflect shared beliefs (Graue, 1993).

Method

This research was based on a qualitative study conducted by the first author and a colleague (Hatcher & Engelbrecht, 2006) that explored parental beliefs about children's kindergarten readiness in five play-based programs accredited by the National Association for the Education of Young Children (NAEYC) in an urban area of the southwestern United States. Hatcher and Engelbrecht (2006) recommended further study comparing teachers' and parents' beliefs about school readiness within programs to discover whether their beliefs are congruent.

This study also used in-person open-ended interviews with the addition of two elements. Teachers and parents from three programs in different parts of the country were interviewed, and the interview data were analyzed and compared within and across the programs, to explore whether shared beliefs about kindergarten readiness might be identified at the local level and nationally.

Setting

The research involved three programs in two states. All three programs served preschool-age children, using developmentally appropriate, play-based approaches as described by NAEYC (Copple & Bredekamp, 2009). Programs were distinct in location, setting (rural, small city, suburban), and size. Program A is a small, university-based lab school in a predominantly rural county of a northeastern state (county population 30,000, 18 persons per square mile). Children exiting the program and entering kindergarten have one public school option, as the surrounding area has no private or parochial schools. More than 21% of the county's approximately 2,000 children live in poverty. The average household income is \$39,827 (Annie E. Casey Foundation, 2009), and approximately 25% of the population has bachelor's degrees or higher (U.S. Census Bureau, n.d.). Program A employs five staff members (four full-time and one part-time) and enrolls children in one of two programs: a full-day, full-year classroom or a three morning per week, school-year classroom. Total program enrollment is 36 children ages 3–5. The program serves as a teaching site for the university's early childhood education program, but 90% of enrolled families are from the surrounding community.

Program B is a university-based full-time child care center in a small city of more than 120,000 (county population 234,000) in a southwestern state. Multiple kindergarten settings, including private, public, and parochial schools are available to children exiting the preschool program. Twenty-seven percent of the county's approximately 58,000 children live in poverty. The average annual household income is \$38,963, and approximately 20% of the population has a bachelor's degree or higher (U.S. Census Bureau, n.d.). Program B serves 61 children, infants through preschool, with 31 preschool-aged children enrolled. The full-day, full-year program employs 19 staff members (14 full-time and 5 part-time). Program B is a part of the child and family studies academic component of a private university and serves as a teaching and research laboratory. Sixty-five percent of the children in the program are children of university faculty, staff, or students. The remaining 35% are from families not directly associated with the university.

Program C is a full-day Head Start program that operates preschool classrooms during the school year in partnerships with school districts throughout a five-county region in a southwestern state. This region includes urban, suburban, and rural communities. The multisite program serves 1,071 children and employs 54 teachers and 53 instructional assistants. Head Start is intended to serve children from families with incomes below federal poverty guidelines; however, local programs may reserve 10% of slots for families whose income is above the poverty guidelines. In this service area, those slots were filled with children with identified disabilities.

Participants

Twenty-nine females, 13 teachers and 16 parents, participated in the study. One participant answered both the teacher and parent questions. The

parents were mothers of children in the preschool programs. Participants from Program A were five teachers and six parents. Program B had four teacher and five parent participants, and Program C had four teacher and five parent participants. Across the programs, teachers' education ranged from associate's to master's degrees; their preschool teaching experiences ranged from two to more than 30 years. As a whole, parent participants were highly educated, with 15 parents having some college experience (see Table 1). Parents' annual estimated income levels ranged from less than \$20,000 to more than \$80,000 (see Table 2). Parents in Program B reported the highest income and level of education.

Table 1 and 2

Table 1
Teacher and Parent Education Levels

Group	Highest degree earned				
	High school	Some college	Associate's degree	Bachelor's degree	Master's degree
Teachers					
Program A			1	2	2
Program B		1	1	2	
Program C				3	1
All teachers	0	1	2	7	3
Parents					
Program A				5	1
Program B			1	1	3
Program C	1	2	2		
All parents	1	2	3	6	4

n = 29

Table 2
Parental Family Incomes Per Year

Group	Less than \$19,999	\$20,000-\$39,000	\$40,000-\$59,000	\$60,000-\$79,999	More than \$80,000
Program A			3	1	3
Program B				1	4
Program C	2	1	1		1
Total for all	2	1	4	2	8

n = 17

Research Design

Volunteers (parents and teachers) from the three programs participated in open-ended, qualitative interviews and completed brief demographic questionnaires. One researcher from each of the three programs obtained IRB approval and permissions and conducted in-person interviews at their respective site. All interviews occurred within a four-month time period at the end of the school year to capture parental and teacher beliefs in anticipation of the next school year. Interviews lasted an average of 35 minutes and varied from approximately 20–50 minutes.

Researchers followed a prescribed research protocol that outlined research and analysis procedures to ensure transferability of data. Demographic information was summarized, and descriptive statistics were compiled for each group as well as for all participants.

Data Analysis

The authors independently identified emergent themes from interview transcripts by following a multistep analysis that included: (a) three readings of each interview to establish overall understanding and general impressions, (b) data coding and identification of data units (significant statements) as adapted from Erlandson, Harris, Skipper, and Allen (1993), (c) sharing of themes with all researchers and collapsing of themes, if necessary, according to Creswell's (1998) spiral image of data analysis, as dictated by the data, and (d) relating themes to demographic data while comparing within- and across-program beliefs.

Two criteria were particularly important to the interview analysis: similarity of developmental areas considered important to readiness, such as social and emotional development, and commonality in language and phrases used or purposes described by participants. An expert early childhood researcher/educator reviewed the themes and compared them with a sample of participants' responses to verify whether the themes reflected the content of interviews. The six themes that emerged in the analysis form the framework of the discussion of findings below.

Findings

Themes

Six themes emerged to inform the research questions. The first three themes reflected participants' beliefs about readiness, informing Research Question 1. Theme 4 included preschool roles as preparation for kindergarten, related to Research Question 2. Theme 5 included descriptions of sources of readiness information, informing Research Question 3. A sixth theme also emerged in both teacher and parent interviews, cutting across all of the research questions: a general feeling of anxiety about kindergarten expectations and children's readiness.

Theme 1: Readiness for kindergarten as social and emotional factors. Twenty-five of 29 participants associated kindergarten readiness with social-emotional maturity and the ability to interact successfully with peers and teachers. Responses included descriptions of social skills, social problem solving, and emotional expression. One parent commented: "I think for me it [kindergarten readiness] means ready socially to interact with their peers. ... My biggest concern is the social aspect" (Parent 2). Teachers often emphasized ensuring "the continuum of social-emotional growth" (Teacher 1) and described opportunities for practicing social skills in preschool as opposed to what they perceived as the more structured kindergarten environments. Two teachers felt that their hard work on children's social skills may not be recognized by parents or kindergarten teachers.

Parents and teachers alike commented on preschool influences upon children's abilities to solve interpersonal problems with discussion. Eleven

of 13 teachers described the importance they placed on helping children solve such problems, while 11 of 16 parents mentioned problem-solving as strengths of the programs. All parents and teachers in Program B cited the teaching of problem-solving skills as key for kindergarten readiness. One parent commented:

From day one, from our first experience here [in preschool], they've been really big on expressing yourself with words. ... That's been a huge, huge help, and I think that's a life skill that they do a good job of teaching the children here. (Parent 14)

Theme 2: Readiness as specific school-related skills. All 13 teachers and 11 of 16 parents mentioned the need for children to acquire mastery of what the authors defined as school-related behaviors and self-regulatory skills. Responses were considered to reflect this theme if they addressed behaviors usually associated with success in school, such as paying attention, cooperation with the school routines, working in large groups, taking direction from a teacher, and staying on specific assigned tasks. One teacher described these behaviors as

following a routine, the same routine every day, so that they get used to it ... and I think that in kindergarten there is a routine as well, so they're already used to that. They are used to sitting in a group and listening to a teacher, sharing their thoughts about themselves in a group. (Teacher 2)

Eleven parents emphasized the importance of children cooperating with teachers. One parent stating that "they [children] need to know what is being asked of them, what they need to know" (Parent 8). Parents and teachers also described the ability to take care of one's own needs as indicating readiness. A teacher commented, "We [teachers] have to teach it [self-help skills] all over again, you know what I mean. ... But you know, flush the commode, wash your hands" (Teacher 7).

Theme 3: Readiness for kindergarten as language and literacy skills. Eleven teachers and 12 parents described literacy skills (both general and specific) as essential to kindergarten readiness. Specific skills such as letter recognition, sound/letter association, recognizing sight words and names, and writing - especially the ability to write one's own name - were noted. One teacher from Program A described her changing expectations for writing, based on local kindergarten practices:

I want their names to be written with a capital first letter and lower case. ... The children in this program come in the beginning of the morning and sign in on a question of the day. ... I don't like to see them [children] going into kindergarten and immediately being corrected. (Teacher 2)

Not all teacher comments were this specific about kindergarten expectations for writing, but 9 of the 13 teachers mentioned that they included name-writing in their curriculum. In contrast, only 5 of the 16 parents mentioned name-writing as critical. Parent responses instead focused on reading as the crucial element in literacy, and the belief that preschool children should have extensive prereading skills in order to succeed in kindergarten. Participants also commented more generally about children's vocabulary growth or use of language.

A majority of parents from all programs were generally well informed about expectations for reading and writing in kindergarten and described their respective preschool programs as providing a solid foundation for literacy skills. All parents in Program B, for example, expressed awareness that local kindergartens expected children to have substantial reading skills before entering kindergarten, tying this knowledge to their expectation that preschools were providing these skills. In contrast, two parents from Program A said they were unsure what was expected at the district's required kindergarten screening day. Parents in Program C were particularly focused on literacy and could identify multiple practices focused on children's literacy skills, such as assignments for writing or reading at home, play-based literacy activities, and special help with speech delays. One parent reported, "They [preschool] gave me things to work on with him, like working on his writing, and working on knowing his letters" (Parent 11).

Theme 4: Preschools' essential roles in preparing children for kindergarten. Participants expressed positive feelings about preschool and appreciation for their young children's learning and social opportunities; 11 of 13 teachers and 15 of 16 parents related quality preschool experiences to anticipated success in kindergarten. Parents mentioned opportunities to develop worthwhile approaches to learning such as enthusiasm and curiosity while being introduced to group experiences. One parent commented,

Because they've been at [school name], I think that's a huge advantage. ... They're used to being around larger groups of children and having teachers, other than parents, lead them in activities. ... We have a neighbor, those kids stay at home. ... It's very different in how that child reacts in group situations. (Parent 17)

While specific questions about the association of play with kindergarten readiness were not included in the interviews, the importance of children's play experiences in preschool was mentioned by five teachers in Programs A and B, four parents in Program A, and two in Program B. In Program C, one teacher and no parents described play-based experiences as related to kindergarten readiness.

Theme 5: Assessments and home/school communications for readiness information. Both teachers and parents discussed a variety of assessment information that programs provided and associated that information with kindergarten readiness. This included references to kindergarten screening practices and screening results, which participants associated with the preparation children had received in preschool. Fourteen parents reported that they relied on information about day-to-day happenings in preschool to determine their children's readiness for kindergarten, and did not cite formal readiness materials or informational school meetings. Nine parents gave specific examples of helpful home/school communications, such as informal conversations, formal conferences, and assessment information derived from feedback tools. Two parents (one from Program A and one from Program C) stated that they did not receive helpful feedback about their children's readiness. Conferences and conversations were especially

important to parents in Programs A and B. One parent’s comment (Program B) was a typical response on the importance of personal conversations:

I absolutely loved the daily feedback that I got from [child’s] teacher. [The teacher] will tell me if he had a good day or a bad day. ... I would also say that seeing their work immediately the day that they do it, demonstrated on the walls, and [teacher] or [child] pointing it out to me so that I can see what they did and if he’s writing his name or he’s doing addition ... so definitely asking her ... seeing the work first hand, those are probably the big thing. ... And the parent-teacher conference, of course, is helpful. (Parent 14)

All teachers felt they provided extensive developmental progress information to families and directly helped families who had kindergarten readiness concerns. Eight of 13 teachers noted the importance of special readiness training, such as workshops or college coursework (see Table 3). Teachers cited personal experiences or visits to local schools to inform themselves about kindergarten readiness expectations, and described the use of specific tools. One teacher in Program C noted the usefulness of their electronically based assessment system (described as a “report card”), and teachers in Program A described the triannual assessment information shared with parents through individual parent/teacher conferences. Program B relied on portfolio-based information as well. As one teacher noted, “We have their [children’s] portfolios, and we keep track of their handwriting samples. [Parents] can really see how their drawings have improved” (Teacher 6).

Table 3

Table 3
Sources of Teachers’ Kindergarten Readiness Training

Special Training?	School Information Meetings	Teacher Conferences	Parent Feedback	Visits to Schools	Personal Experiences	Other
9	4	4	5	4	7	3

n = 13

Note: Teachers could list multiple methods of training

Theme 6: Anxiety about kindergarten and children’s readiness. In addition to the themes addressed above, analysis revealed an affective component across participants’ interviews: anxiety about kindergarten expectations and children’s readiness. Of the 16 parent participants, 11 expressed concern about the upcoming kindergarten experience and whether their children would be ready for the expectations regarding behavior and academic performance that they believed to be part of kindergarten. They voiced concerns about children’s academic preparation, social skills, and

ability to adapt to school routines, as well as kindergarten program characteristics.

Of the 11 parents who expressed anxiety, all focused on the new tasks and expectations that children would encounter in kindergarten, particularly in regard to reading and literacy skills. In addition, concerns about social maturity emerged among parents. One parent wondered about her child's ability to be successful in the structured kindergarten environment.

I'm most concerned about his following instructions. ... He's more acclimated to what kids want to do, not what the adults want to do. And I can see that hurting him and whenever they need an assignment done or a paper done, I don't think he'll do it. (Parent 13)

Parents and teachers expressed concern about kindergarten expectations for mastery of reading, and at the same time, described the extensive focus on literacy skills in their respective preschool programs. One parent reported:

I'm glad that she's learned her letters 'cause I'm just afraid of the whole reading thing. ... I'm hoping the whole reading and stuff won't overwhelm her when she gets there. I mean, with her syllables and stuff, she's done really good with that. She's done really good counting, so I'm thinking she's ready. I'm just still afraid of the reading. (Parent 9)

Teachers in Programs A and B speculated that parents were anxious about kindergarten literacy expectations, but expressed confidence in their own programs' appropriateness and thoroughness. Teachers described the importance of reassuring parents that children were adequately prepared.

Parents in Program C were less concerned about their children's kindergarten readiness than were parents in Programs A and B, with only one parent expressing anxiety about the upcoming transition. While teachers indicated less anxiety than parents about kindergarten transition, 5 of 13 teachers had concerns either about individual children's readiness or the rigors of today's kindergartens. However, none of the 13 teachers expressed concern about the developmental appropriateness of their programs or the breadth and depth of experiences they provided to children.

Within-Program Comparisons

Beliefs among parents and teachers were generally consistent within each program. This is an important finding, as congruency of goals is considered important for optimal relationships between teachers and families (Dockett & Perry, 2006). In each program, teachers and parents described social and emotional skills as being essential to readiness. Teachers and parents generally agreed that literacy skills and school-related routines were important elements in readiness. Parents and teachers had similar positive perceptions of preschools, and shared some anxieties about kindergarten expectations. Teachers and parents also agreed that communication about developmental progress, as related to readiness, was an important part of their programs. Differences within programs among parents and teachers also emerged.

Program A. All participants in Program A described the importance of social and emotional readiness and held positive images of the preschool's efforts in kindergarten preparation. While teachers in Program A expressed

beliefs that parents expected more literacy skills from their program and were less concerned with social and emotional readiness, parental interviews did not confirm this. While six of seven parent participants did highlight the preschool's successful introduction of literacy skills, analysis of parent interviews revealed that parents did believe the program was providing literacy education, and all parents continued to emphasize social and emotional skills.

Program B. Parents in Program B associated literacy skills with readiness, while teachers more often emphasized social and emotional factors. Teachers and parents in Program B were united in describing the practice of holding back as a way to help a child whom they feel may not be ready for kindergarten, while no teachers in Programs A or C did so. Two parents in Program B discussed the relative youth of their children compared with other kindergartners. Because parents in Program B reported the highest income and highest educational levels of the three groups (see Table 2), this finding is consistent with research by Diamond, Reagan, and Bandyk (2000) and Hatcher and Engelbrecht (2006), who reported that highly educated parents are more anxious about school success and more likely to delay kindergarten entry for their children. Most parents and teachers agreed that they maintained close communication about readiness issues. As noted, parent and teacher groups described play as a valued part of their children's preschool experiences, but there was little direct association of play with kindergarten readiness.

Program C. In Program C, both parents and teachers emphasized attainment of literacy skills as the predominant goal of readiness. Program C participants also relied on a specific instrument, described as a "preschool report card," as the primary source of readiness information. All five teachers described in detail the work they did helping children to gain basic self-help skills. In contrast, parents discussed literacy and math skills attained in preschool with minimal discussion of self-help skills. Parents described their responsibility in preparing their children for kindergarten, although teachers did not mention this aspect. This is in contrast to research by Diamond et al. (2000), who reported that parents concerns over readiness were not directly related to in-home preparatory activities.

Across-program comparisons

Programs A and B were both university lab schools but were located in different cultural contexts (rural vs. urban). Responses from participants from Programs A and B suggested that they perceived developmentally appropriate practice and play in preschool to be important to kindergarten readiness, while participants from Program C, a multisite Head Start program, emphasized specific literacy skills and school behaviors. Two parents in Program C, which required family visits, addressed parental responsibility for children's kindergarten readiness, but this was rarely mentioned by other participants. While all groups noted the importance of literacy, parents in Program B and C discussed literacy extensively, particularly citing the need for children to gain early reading skills before kindergarten.

Discussion and Recommendations for Practice

Beliefs about Readiness in Cultural Context

Across geographic areas, participants held beliefs in common about meanings of kindergarten readiness, and the importance of preschool to children's readiness. We speculate that this is likely influenced by highly publicized national-level conversations about early education. Availability of public prekindergarten programs is included in 39 states' early education plans, and the U.S. Department of Education has described opportunities for quality education in the early years as essential to children's later school success. In its 2011 report, *Transforming Public Education*, the Pew Foundation set out an ambitious and comprehensive plan to include prekindergarten as part of an overall continuum of learning through grade 12. The National Institute for Early Education Research provides annual summaries of initiatives to establish publicly funded preschools across the United States.

Participants in all programs shared a multidimensional definition of kindergarten readiness, citing social and emotional factors as the core of readiness, combined with perceived academic components such as literacy skills. This finding has implications for both preschools and kindergarten. It confirms and justifies the priority given to social skills in many preschool programs. Even in Program C, which emphasized literacy, participants referred to the importance of children's social connections, problem-solving, and self-regulation. Because social interaction opportunities for young children often occur in the context of play, the role of play, in particular center-based and free-play experiences in preschools, remains essential to meeting the social readiness goals most parents and teachers express for preschoolers. Maintaining direct links between social skills, play, and future school success in the minds of parents and the practices of teachers will assist preschools that may be experiencing pressure to align curriculum with K-3 programming and to include more direct instruction of specific academic-based skills. When discussing school readiness, Rafoth, Buchenauer, Crissman, and Halko (2004) argue that one of the signs of a "great" preschool is that it includes at least one hour of play daily. Since play-based learning is not part of new national standards for kindergarten (Common Core State Standards Initiative, 2010), the challenge to preserve play's place in education is clear. Two of the three programs in this study, Programs A and B, are accredited by the NAEYC, which advocates developmentally appropriate, play-based experiences. Yet, even in these programs, when asked about kindergarten readiness, teachers initially cited literacy skills and cooperation with school routines. While a few parents cited play as important to preschool experiences, a direct association of play with school readiness was not mentioned in the interviews.

Most participants linked prereading skills and kindergarten readiness. Intense attention has been paid to early literacy and language acquisition in preschool (McClelland et al., 2007). In all three programs, teachers, and parents alike expressed the belief that children should have multiple opportunities for building literacy skills in preschool.

Contextual factors may have influenced different responses across programs. It is noteworthy that families in Programs A and C rarely mentioned “holding back” (delaying kindergarten entry) as an option for children who are perceived to be unready. Program A is in a rural area, with poverty rates for children under 18 ranging from 18% to 27% (Annie E. Casey Foundation, 2009). In addition, no private schools or bridge programs were available in the area. Program C is a Head Start program designed to serve low-income families whose resources may be too limited to provide children with an extra year of schooling before enrollment in public school. In both of these groups, delaying kindergarten entry may have been discussed less because there were no or limited alternatives to starting kindergarten. Some parents in Program B mentioned the option of delaying kindergarten entry as a means of ensuring readiness. Program B is in a small city with multiple schools and programs. Four of the five participating Program B parents reported incomes of more than \$80,000 a year. These parents might be able to explore other options for delaying kindergarten entry that are not possible or realistic for participants in the other programs. Parents from the two university lab schools discussed play-based learning, in contrast to Head Start parents, who cited specific literacy skills and rarely mentioned play. Geographic location in itself did not appear to be a factor when comparing participants’ shared beliefs about kindergarten readiness and the necessity for preparation, reflecting shared across-state images of preschool, kindergarten and readiness (Pew Center on the States, n.d.). No parent participants were unsure about their images of what a kindergarten-ready child should be like. Parents expressed definite beliefs about the importance of gaining literacy skills, the rigor of today’s kindergarten, and the key role that preschool plays in helping children to prepare for transitioning into kindergarten. Preschool educators can reasonably assume that parents will have definite beliefs about kindergarten readiness that may be shaping their expectations from their current programs. Teachers can create means for discovering those beliefs, such as purposeful inclusion of discussions and information on kindergarten readiness early in the year prior to kindergarten enrollment in order to plan effective communication and address parents’ concerns.

Attention to Local Contexts

In contrast to the lack of teacher training directly related to kindergarten transition or readiness found in previous research (Early et al., 2001), 8 of 13 teachers participating in this study described receiving readiness training or relevant information (e.g., articles, books, or having discussions with “alumni” parents whose children had transitioned to kindergarten from the teachers’ preschool programs). The four Program C teachers described specific skills needed for kindergarten readiness, but it was not clear whether these reflected their program’s requirements or local kindergarten expectations. The majority of teachers expressed unfamiliarity with what local kindergarten programs expected from entering children or what school districts were using as screening/intake instruments. Even in Program A, a rural setting with a single kindergarten option for exiting preschoolers (a public school kindergarten), three of four teachers did not report that they

directly connected with kindergarten teachers about that school's expectations. One Program B teacher noted that parents had provided her with information about a local kindergarten "roundup" (screening and orientation), but she had not attended the event. More seamless transitions to kindergarten could be facilitated by broadening teacher training to include specific connections from preschools to receiving kindergarten programs. This could prove more challenging for preschools such as Programs B and C, which send children into a variety of kindergarten programs.

Participants' awareness of the importance of kindergarten transitions and readiness is most likely a combination of their education (parents and teachers), years of experience (teachers) or personal knowledge of kindergarten practices in their communities (teachers and parents) (see Table 1). All participating teachers had some form of degree and training beyond high school. Fifteen parent participants had education beyond high school.

Awareness of specific contextual factors that influence parents' and teachers' beliefs about readiness can help administrators and trainers to develop targeted training and communication tools. Teachers in Program A, for example, could capitalize on the fact that almost all enrolled children will attend the same public kindergarten by planning multiple opportunities to connect with the local school or conduct joint training with kindergarten teachers. Knowing that high SES parents often consider delaying their children's entry into kindergarten, teachers in Program B could provide information on the positive and negative consequences of those decisions. Because parents in Program C rely heavily on assessment information to ascertain whether their children are ready for kindergarten, teachers should maintain a priority of regularly communicating assessment results while also including information showing connections between play with readiness.

Preschools' Roles in Readiness

Concern for children's future school success dominated participants' responses, regardless of group location or role. Participants indicated that preschool goals should be consistent with those of kindergarten. This finding implies that parents and teachers are viewing preschool experiences as precursors or "preparatory" programs, not as programs with intrinsic value for children regardless of links to formal schooling. This may reflect the current policies stressing aligning preschool with K-3 programs (Wat, 2010). While this study did not explicitly explore how preschool teachers and families connected with kindergarten programs, teachers and parents cited early acquisition of academic skills, in particular literacy skills, as a function of today's preschools. While preschools can resist the practice of drilling children on isolated literacy or mathematical skills, it is important to acknowledge that today's preschools are expected to provide a foundation for reading, writing, and computation.

Participants noted the importance of school routines. Descriptions of behaviors such as waiting in line, following directions, and participation in large group activities indicate that teachers and parents viewed kindergartens as structured social and academic environments. This finding

is consistent with McBryde, Ziviani, and Cuskelly (2004), who found that parents and teachers rated behaviors such as the ability to concentrate and pay attention as key readiness skills. Most definitions of readiness include behavioral indicators related to “meeting the requirements of a structured learning environment” (Bickel, Zigmond, & Strayhorn, 1991, p.105). While preschool teachers should be aware of these expectations, asking young children to wait in line or to spend large amounts of time in whole-group activities is not consistent with developmentally appropriate practice (Copple & Bredekamp, 2009).

Sources of Information: Assessment Tools and Home/School Communication

Parents from all programs relied on preschool-based assessment information to determine their children’s readiness for preschool, in contrast to Hatcher and Engelbrecht (2006), who found that parents relied on informal sources. The programs used a variety of assessment tools, including portfolios, checklists, formal screening instruments, and more structured, program-based “report cards” based on observations and acquisition of specific skills. Parents expected their children’s teachers to provide them with information upon which to base readiness for kindergarten. While the participating preschool teachers indicated that they considered assessments to be important, they did not report an understanding of the weight that parents give to teachers’ assessments of school readiness. Teachers conveyed that they received some specialized training in the concept of readiness - understanding it, assessing it, and incorporating ideas about readiness into programing. It was not clear from the interviews whether teachers intentionally used this information when talking to parents about readiness or whether teachers felt informed about their local kindergarten expectations. To meet parental expectations for specific readiness information, preschool programs can develop clear and consistent plans for communication, ideally based on a shared vision of readiness based on common beliefs among parents and staff.

Anxieties about Readiness and Kindergarten Transition

Woven throughout the interviews was an overall sense of anxiety about preschoolers’ upcoming kindergarten experiences. In qualitative research, it is often appropriate to note what is missing from interview responses; in this case, what was missing was the eager anticipation of kindergarten. Analysis revealed images of kindergarten as a place of high expectations and task-oriented assignments. This was consistent with results in Hatcher and Engelbrecht (2006) that described negative feelings about today’s kindergarten classrooms. Graue (2010) confirms this image of kindergarten as a place where children spend most of their days engaged in reading and math activities, at the expense of play. The prevalence of anxiety among parents across all three programs may be related to self-selection; the study’s focus may have encouraged participation by parents who already harbored concern about kindergarten environments.

Early identification of teacher and parent goals for preschool children, frank discussion of upcoming transitions to kindergarten, and prioritization

of specific parent/teacher readiness communication prior to kindergarten enrollment may help to alleviate anxieties and bolster positive images of kindergarten. As described by Goldstein (2007), kindergartens are often places with rich, engaging learning experiences, with supportive, nurturing teachers who skillfully embed learning experiences and required standards in developmentally appropriate ways. Teachers' reinforcements of the idea that kindergarten experiences will be positive could enable parents to feel confident about preschool approaches to kindergarten readiness and to develop a more positive general image of kindergarten.

Such nurturing environments, however, may not be typical of the receiving kindergartens in the locations highlighted in this study. Parents may be responding realistically to their personal knowledge of local programs' expectations and rigor. Graue (2010) describes the current culture of kindergarten, noting that "children spend 4–6 times as much time on reading and math activities as they do in play. ... Public perception is that kindergarten is what 1st grade used to be" (p. 29). It is significant that one group of parents (Program C) did not associate kindergarten readiness with play-based activities. This is not to suggest that preschools abandon an emphasis on play and social development, yet awareness of what could be markedly different approaches to learning in kindergartens can be essential to preparing children to enter school. Recognition of the demands children will face in kindergarten may further reinforce preschool teachers' beliefs that preschools must provide the types of play experiences children need that may be disappearing from kindergartens.

With the growth of participation in preschools in the United States, identifying and clarifying teachers' and parents' beliefs about kindergarten readiness can help inform contemporary preschool programming. Parents' and teachers' perspectives will continue to be relevant in local settings even as national education goals, priorities, and policies affect what is expected and required of children entering school. Amid sweeping changes in national early education policies, voices of teachers and parents should continue to be essential in the discourse about kindergarten readiness.

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Appendix A

Questions Asked of Parents

What does the phrase "ready for kindergarten" bring to mind?

As you think about your child and kindergarten, what are your thoughts concerning his/her readiness for kindergarten?

Follow up: What things have shown you that your child is/is not ready?

In what ways do you believe your children's current preschool program prepares your child for kindergarten?

Follow up: Is there anything about kindergarten readiness that you feel the current preschool program is not providing?

What kinds of information from this preschool program will you use to determine your child's readiness for kindergarten? Can you give an example?

Is there anything else about kindergarten readiness and young children that you would like to add?

Prompts used during interviews

What do you mean by...?

Tell me more about...

Repetition or restatement of a phrase

Appendix B

Questions Asked of Teachers

What does the phrase “ready for kindergarten” bring to mind?

What are your thoughts about your current group of students and their readiness for kindergarten?

In what ways do you believe your teaching and your preschool program prepare children for kindergarten?

Follow up: Is there anything about kindergarten readiness that you feel your program is not providing?

What kinds of information do you use to evaluate children concerning readiness? Can you give an example?

Is there anything else about kindergarten readiness and young children that you would like to add?

Prompts used during interviews

- 1- What do you mean by...?
- 2- Tell me more about...
- 3- Repetition or restatement of a phrase

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Mental Health Screening in Child Care: Impact of a Statewide Training Session

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Abstract

Child care settings may provide an optimal setting for identification of early childhood mental health problems. However, little is known about child care providers' attitudes or knowledge about screening for children's mental health problems. Both attitudes and perceived knowledge could affect the successful implementation of mental health screening in child care settings. This report discusses two related pilot studies. In the first, the authors adapted an existing measure to assess child care providers' attitudes and knowledge about mental health screening, and they examined the factors of the new measure in 275 child care professionals. In the second study, the authors examined 203 child care providers' attitudes toward and perceived knowledge about mental health screening before and after a single 3-hour training session. Study 1 factor analysis revealed two factors: attitude about screening and perceived knowledge about screening. Both factors were associated with experience with a mental health consultant and with comfort with children with special needs. Participants in Study 2 demonstrated significant increases in positive attitude and perceived knowledge about mental health screening in child care following the 3-hour training session. Results indicate that child care providers were positively inclined toward participating in mental health screening. Attitudes toward and perceived knowledge of mental health screening increased after a single training session. Findings of this research provide a first step toward understanding child care providers' attitudes about and perceived knowledge of mental health screening in very young children and indicate that both positive attitudes and perceived knowledge can be increased through training.

Introduction

Prejudice about and discrimination against people with mental health problems are pervasive throughout Western society. Misunderstandings

about young children's mental health in particular may serve as a barrier to early detection and treatment of children with mental health problems.

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Importance of Early Screening

Early childhood mental health problems, which can include anxiety disorder, depression, attention deficit hyperactivity disorder, and oppositional defiant disorder, occur at rates of about 10% nationally and are associated with long-term emotional, academic, and relationship problems (Briggs-Gowan & Carter, 2008; Briggs-Gowan, Carter, Bosson-Heenan, Guyer, & Horwitz, 2006; Eggers & Angold, 2006; Lahey et al., 2004; Lavigne et al., 1998). These early childhood mental health problems are not "phases"; they are predictive of mental health problems in school-age children (Briggs-Gowan, 2005; Lahey et al., 2004; Luby, Si, Belden, Tandon, & Spitznagel, 2009). Fortunately, research indicates that intervention is effective and can produce lasting positive effects (Hood & Eyberg, 2003; Lieberman, Ghosh Ippen, & Van Horn, 2006; Olds et al., 1997; Schweinhart & Weikart, 1998; Webster-Stratton, Reid, & Hammond, 2004); however, some studies suggest that only about 8% of children in need of mental health services receive any treatment (Horwitz, Gary, Briggs-Gowan, & Carter, 2008; Costello, Messer, Bird, Cohen, & Reinherz, 1998). The first step toward intervention is identification; early identification has been shown to be feasible and can facilitate intervention (Briggs-Gowan & Carter, 2008; Meagher, Arnold, Doctoroff, Dobbs, & Fisher, 2009). Specialists in multiple disciplines advocate for screening and treatment of mental health problems in very young children (American Academy of Pediatrics Committee on Children with Disabilities, 2001; Jellinek, Patel, & Froehle, 1998; U.S. Public Health Service, 2000).

Social-Emotional Screening in Child Care Settings

Some early childhood experts have called for universal mental health screening in child care settings to increase early identification and enhance treatment outcomes (Bricker, Davis, & Squires, 2004; Carter, Briggs-Gowan, & Davis, 2004; Gleason, Zeanah, & Dickstein, 2010; U.S. Department of Health and Human Services, 1999; U.S. Public Health Service, 2000). Mental health screening has been shown to be both feasible and effective in Head Start centers (Miller et al., 2003). Screening in the child care center is seen as providing a number of advantages over other screening settings. The majority of children in the United States attend child care; in 2008, it was estimated that 51% of preschoolers and 30% of infants and toddlers were in child care (U.S. Census Bureau, 2008). Children spend extensive time in child care - infants average 29 hours a week, and by age 3, children average 34.4 hours a week (NICHD Early Child Care Research Network, 2005). A child care provider is thus able to observe a child's typical behavior over time in a setting that is comfortable for and familiar to the child.

Most parents view their children's child care providers as trustworthy and knowledgeable about child development, increasing the likelihood that

they would be comfortable with the practice of mental health screening in child care settings. Having both child care providers and parents report their observations about a child can contribute to the richness of information (Carter, Briggs-Gowan, & Davis, 2004) and can eliminate potential bias of a single informant (Briggs-Gowan, Carter, & Schwab-Stone, 1996; Richters, 1992; Fergusson, Horwood, & Lynskey, 1995). It is possible that early identification of (and intervention with) children who are at risk of mental health disorders may reduce the risk of preschool expulsion for behavior problems, which occurs at rates higher than in the K-12 population (Gilliam, 2005).

Provider Characteristics and Attitudes toward Mental Health Problems

Little research exists on public attitudes toward or knowledge of children's mental health (Pescosolido, 2007). An exception is the National Stigma Study–Children (NSS–C), in which nearly 1,400 randomly selected adults, with race, gender, and socioeconomic distribution mirroring the U.S. population, were interviewed about their attitudes toward children with mental health problems. Findings from the NSS–C indicate that U.S. adults' attitudes and perceptions about children's mental health are complex and cannot be inferred from research findings regarding beliefs about adult mental illness nor predicted by sociodemographic characteristics, such as socioeconomic status, ethnicity, education level, and gender (McLeod, Fettes, Jensen, Pescosolido, & Martin, 2007; Perry, Pescosolido, Martin, McLeod, & Jensen, 2007; Pescosolido, 2007; Pescosolido, Perry, Martin, McLeod, & Jensen, 2007). One study (McLennan, Jansen-McWilliams, Comer, Gardner, & Kelleher, 1999) suggested that female medical providers and medical providers who have more recent training on mental health conditions are more open to working with children with mental health issues than other providers.

Although few studies have examined the attitudes and beliefs of child care providers and teachers about young children's mental health, the general consensus seems to be that personnel in early care and education settings should be involved in addressing the mental health of children. However, research suggests that a minority of providers and teachers feel they have the skills to support these needs (Reinke, Stormont, Herman, Puri, & Goel, 2011).

Training Child Care Providers

The limited information available about child care providers' training in mental health or mental health screening indicates that education on these topics is not only needed but would be well received. Child care providers report that working with children with severe behavioral disorders is as challenging as working with those with severe physical disabilities (Buysse, Wesley, Keyes, & Bailey, 1996); in fact, research suggests that child care providers rank training in mental health issues as a priority (Fuchs, Monson, & Hatcher, 2010; Buck & Ambrosino, 2004; Reinke et al., 2011). Reviews of early childhood education curricula conducted by faculty, students, and outside reviewers, however, reveal limited training about children's

behavioral problems (Ackerman, 2005; Hemmeter, Corso, & Cheatham, 2006; Reinke et al., 2011).

Research shows that child care providers identify ongoing inservice training as a way to increase their comfort in working with children with disabilities and that they respond positively to structured curricula, training workshops, and handouts that can be taken home for later reference (Fukkink & Lont, 2007; Hadadian, Tomlin, & Sherwood-Puzzello, 2005). Content on early childhood mental health can be provided through such training methods, targeting attitudes and common misconceptions about mental health in early childhood. Commonly held misconceptions include that the child's behavior is "only a phase," that preschoolers are too young to have emotional problems, that nothing can be done to help these children, or that an early diagnosis of mental health problems will need to be included in all future documents about a child, continuing to affect professionals' perceptions of the child.

Positive changes in knowledge and attitudes have been demonstrated after training about children with special needs (Mulvihill, Schearer, & Van Horn, 2002). It seems reasonable to expect similar effects from training on mental health.

Purpose of the Research

In summary, early childhood mental health problems occur in 10% of the national population; however, the majority of these young children are not being identified - much less treated. Developmental screening in early childhood settings has been demonstrated to be feasible and effective; in fact, child care settings may be ideal locations to conduct screenings for young children's mental health issues. In addition, research has demonstrated that child care providers are not only open to training on early childhood mental health but also identify it as a priority.

Extrapolating from the research on training with teachers (on education and special needs) and medical providers (on mental health conditions), we hypothesize that training on mental health screening would have a positive impact on child care provider attitudes. Understanding caregiver attitudes about screening is important for those involved in designing and implementing effective training modules for child care providers and in developing classroom strategies to support healthy social-emotional development in all children. To be successful, training about young children's mental health must address mental-health-related stigma and common misconceptions about screening. Training caregivers to implement mental health screening can also address mistaken beliefs and highlight the role of the child care provider in protecting children from such potentially harmful misattributions.

In Study 1, we examined a new child care provider-focused measure of attitudes and knowledge about early childhood mental health and screening - the Screening Belief Scale (SBS), which is described below. We sought to confirm the underlying factors in the measure in this population and to examine whether providers' background characteristics related to responses on the measure. In Study 2, we examined changes in responses to the measure after a brief training session focused on early childhood mental

health and screening. Finally, we sought to identify characteristics of child care providers related to changes after training.

Research Questions

Study 1 addressed the following research questions:

Do child care providers' responses to the Screening Belief Scale (SBS), a modified version of the Physician Belief Scale (PBS; Ashworth, Williamson, & Montano, 1984), yield definable factors?

Are specific child care provider background characteristics (e.g., demographic characteristics, reported comfort with children with mental health problems) associated with SBS constructs?

Study 2 addressed the following research questions:

Do constructs assessed by the SBS change after a 3-hour training session on early childhood mental health and screening?

Are specific child care provider background characteristics (e.g., demographic characteristics, reported comfort with children with mental health problems) associated with changes in their SBS factor(s) following training?

Methods

Training

As part of a larger state effort to build and sustain high-quality child care in conjunction with the implementation of the state's child care rating system, child care providers participated in a voluntary 3-hour training session focused on mental health screening in child care. This structured training focused on the concepts and strategies for mental health screening in child care settings and included a comprehensive handout summarizing the presented material.

The institutional review board at Tulane University School of Medicine approved the evaluation of the project. Twelve mental health professionals were trained by three doctoral-level psychologists to deliver the training session. The 3-hour training sessions included such topics as rationale for mental health screening in young children, considerations about informal identification strategies, a review of sample screening measures, and a step-by-step approach for initiating a screening program in a child care setting with attention to the process of providing feedback to families. The training also highlighted the importance of partnering with families, discussed developing community partnerships, and emphasized that screening results are not diagnostic.

Each trainer provided up to six training sessions in 2008-2009. All participants completed a background questionnaire and a survey focused on attitudes and knowledge prior to and after the training session.

Participants

Child care providers attended training on children's social-emotional development as part of the state's quality rating and improvement system. During the study period, 821 child care teachers, directors, and regional technical assistance agents who were attending a single training session on children's social-emotional issues and development were invited to

participate in the assessment. Study 1 participants were drawn from the 361 attendees at the first two social-emotional training sessions offered. Of these attendees, 275 completed every item of both the pre- and post-training attitude questionnaire. Study 2 included participants from the subsequent single training session. Of the 460 providers who attended the training sessions, 203 completed all items on both questionnaires. The post-test was administered immediately after the training session ended. See Table 1 for more details on background characteristics.

Table 1

Table 1
Background Characteristics of Participants

	Study 1 N = 275	Study 2 N = 203
Ethnicity*		
African American	35%	60%
Caucasian	52%	37%
Other (Native American, Hispanic, Native Hawaiian, Asian)	7%	2.8%
Education level		
High school or less	40%	30%
Certification or some college	30%	34%
College degree or higher	28%	36%
Years in child care mean (SD, range)	8 years (8.2, 0-40)	9 years (8.6, 0-45)
Child care position		
Assistant teacher	37%	26%
Lead teacher	43%	39%
Director/owner	18%	15%
R&R staff	1%	1%
Other	0%	18%
Experience with MHC		
Number children expelled mean (SD, range)	1.0 (4.0, 0-10)	0.5 (1.3, 0-40)
Comfort with developmental disability mean (SD)	4.8 (1.4)	4.7 (1.5)
Comfort with emotional problems mean (SD)	4.3 (1.5)	4.3 (1.5)
Comfort with behavioral problems mean (SD)	4.1 (1.5)	4.1 (1.5)

*p < 0.01.

The only demographic factor that differentiated the individuals who participated at both time periods (n = 478) from those who completed only the pre-assessment (n = 343) was ethnicity. Caucasian child care providers were more likely to complete both questionnaires than African American child care providers ($\chi^2(3) = 25.3, p < 0.001$). No significant differences were found between the two study groups in terms of years in child care, education (certification beyond high school or not), or current role (supervisor in child care vs. teacher and assistant teacher). Study 2 included a higher proportion of African American participants than Study 1 ($\chi^2(6) = 38, p < 0.01$).

Measures

Demographic Questionnaire. All participants completed an anonymous demographic questionnaire. This 6-item questionnaire inquired about their role in the child care setting, years working in child care, education level, gender, and ethnicity. Participants were also asked to estimate the rate of expulsions from their classroom or center and to report whether the center had an early childhood mental health consultant.

Measuring Participant Comfort with Teaching Children with Special Needs. Using a 6-point Likert scale, the participants were asked to identify their level of comfort teaching children with four common early childhood issues: developmental delays, emotional problems, behavioral problems, and peer relationship difficulties. The scale ranged from “1” indicating “very uncomfortable” to “6” representing “very comfortable.” Overall, teachers reported more comfort with children with developmental delays than emotional or behavioral problems; however, these items were highly correlated ($r = .70-.80$). For this reason, analyses employed the mean of the three scales as a composite marker of comfort working with children with special needs.

Measuring Participant Attitudes about Mental Health Screening. To our knowledge, no questionnaire has been published regarding mental health screening in child care. For this study, we modified the Physician Belief Scale (PBS), a measure of physician attitudes toward mental health (Ashworth, Williamson, & Montano, 1984) to create the Screening Belief Scale (SBS, see the Appendix). The SBS includes 16 items scored on a 5-point Likert scale, with responses ranging from “Strongly Agree” (1) to “Strongly Disagree” (5). Six items were reverse scored. Modifications from the PBS were intended to shift the focus from attitudes and comfort about mental health issues in general to the child care setting specifically.

Analyses

Data were analyzed using SPSS 13.0. Responses to the survey’s Likert scales were treated as continuous measures. The scale was analyzed using Principal Component Analysis (PCA), and items on the scale were assigned to subscales or eliminated based on PCA and item-total correlations. Differences in categorical variables were examined using chi square analyses, and T-tests were used to compare continuous variables.

Results

Study 1: SBS Factor Analysis

A PCA of the 16 items of the scale yielded two primary factors with eigenvalues of 2.3 and 1.7, respectively. A scree plot indicated that these two were the main factors, and the slope of the plot leveled off beyond these two factors, which accounted for 39% of the variance of the items.

Factor 1 - “screening attitude” - included nine items that reflected participants’ opinions on mental health screening in child care settings, such as “I believe that screening for emotional and behavioral issues is not very important in the child care setting” (see the Appendix). Internal consistency was high (Cronbach’s alpha = .79). The second factor - “perceived knowledge” - included four items that reflected trainees’ perception of

whether they had sufficient knowledge to administer mental health screenings, including items such as “I do not know what to do if I think a child has emotional or behavioral issues.” A fifth item focused on concern that the family would find screening offensive appeared to load onto this factor but had low (< 0.1) item-total correlations and was removed. The resulting factor demonstrated acceptable internal consistency (Cronbach’s $\alpha = .60$).

Factor Correlates

Screening Attitude. The mean score on the pre-training attitudes about screening scale was 36.7 (SD 5.3, range of 21-45). Child care providers who had achieved some certification beyond high school showed more positive attitudes toward screening than those who had a high school degree or no degree (38.2 vs. 36.0, $t(273) = -3.4$, $p < 0.001$). Years of experience was also associated with more positive attitudes ($r = 0.22$, $p < 0.001$). Working in a center with a mental health consultant was associated with positive attitudes toward screening (37.8 vs. 36.7, $t(249) = 2.2$, $p < 0.03$). The comfort composite measure showed a small association with screening attitude ($r = .19$, $p < 0.003$). Number of children expelled by a teacher was similarly negatively associated with positive attitudes toward screening at a small magnitude ($r = -0.18$, $p < 0.03$).

A stepwise multivariable regression analysis was computed (see Table 2). In the first step, we entered the demographic factors (experience, race, role, and education). In the second step, we entered early childhood mental health consultant history, number of expulsions reported by participant, and reported comfort with children with special needs. We used this order because demographic factors might influence the participant’s response to an early childhood mental health consultant, expulsion patterns, or comfort with children with special needs. The model explained 11% of the variance of attitude toward screening; comfort and experience with an early childhood mental health consultant contributed independently (Table 2). Expulsion rate approached significance ($p = .056$).

Table 2

Table 2
Hierarchical Regression for Screening Attitude and Perceived Knowledge factors (n = 203*)

Variable	Screening Attitude			Perceived Knowledge		
	B	SE B	β	B	SE B	β
Step 1						
Years in child care	0.02	0.07	0.02	-0.06	0.04	-0.15
Beyond high school degree (Y/N)	0.31	0.34	0.08	0.20	0.17	0.11
Supervisory role (Y/N)	0.97	0.86	0.10	0.52	0.42	0.11
Ethnicity	0.36	0.22	0.15	0.12	0.11	0.10
Step 2						
Prior or current MH	1.98	0.95	0.19**	1.01	0.46	0.20**
Number of expulsions	-0.23	0.12	-0.18	0.04	0.06	-0.68
Comfort with special needs	1.05	0.37	0.26***	0.40	0.13	0.21***

*Note: For screening attitude, Adj R2 = .02 for step 1 and Adj R2 = .12 for step 2. For perceived knowledge, R2 = .00 for step 1 and Adj R2 = .12 for step 2.

** p < .05.

*** p < 0.01.

Perceived Knowledge. On the perceived knowledge scale, the mean score was 13.4, with a standard deviation of 2.4 and a range of 4-20. Perceived knowledge had a positive relationship with having a degree beyond high school (14.1 vs. 12.9, $t(196.3) = -3.6$, $p < 0.001$) and with being a supervisor in the center (13.8 vs. 12.5, $t(272) = 4.1$, $p < 0.001$) and years in child care ($r = 0.28$, $p < 0.001$). Participants who reported higher levels of comfort with having children with special needs in the classroom also reported a modestly higher level of perceived knowledge of mental health screening (correlations, respectively, $r = .26$, $p < 0.001$). In the perceived knowledge multiple regression, we entered variables in the same order as in the screening attitude multiple regression. The resultant model explained 12% of the variance; comfort with children who have special needs and experience with an early childhood mental health consultant contributed independently.

Study 2: Change Following Training

SBS Factors

Screening Attitude. We found a significant increase in positive attitude toward mental health screening following training (see Table 3). Change in attitude about screening was negatively associated with pre-training attitude ($r = -0.41$, $p < 0.001$). No significant associations were found with the other participant characteristics.

Perceived Knowledge. Perceived knowledge also increased significantly between pre-training and post-training (see Table 3). Pre-training knowledge score was inversely associated with change in perceived knowledge ($r = -.60$, $p < 0.001$). There was a nonsignificant trend toward larger changes in perceived knowledge in Caucasian trainees than other

racial groups (1.7 vs. 1.0, $t(218) = -19$, $p < 0.06$). No significant associations with other variables were found.

Table 3

Table 3
T-tests for Pre- and Post-Assessment of Screening Attitude and Perceived Knowledge Factors

Variable	Pre-score Mean (SD)	Post-score Mean (SD)	Change Score Mean (SD)	t (df)	p
Screening attitude	36.5 (5.3)	38.1 (5.3)	1.6 (4.4)	-5.4 (202)	$p < .001$
Perceived knowledge	13.8 (2.8)	15.0 (2.4)	1.3 (2.6)	-7.1 (195)	$p < .001$

*Note: Range of screening attitudes: Pre-score: 16-45, post-score: 20-45, change -14-15. Range of perceived knowledge: pre-score: 4-20, post-score: 9-20, change -7-8.

Discussion

To our knowledge, the two studies reported here are the first to examine child care providers' attitudes toward mental health screening. Together they constitute an important first step toward characterizing child care providers' attitudes about mental health screening and their perceived knowledge regarding mental health screening. The studies identify factors involved in positive changes in attitude and knowledge. With attention in the field increasingly focused on early childhood mental health, it is essential to understand child care providers' attitudes toward and perceived knowledge about mental health screening and their role in the process (especially if screening occurs in a child care setting).

Overall, participants reported relatively positive attitudes toward mental health screening in child care, which suggests that child care providers may be open to helping identify children in need of mental health assessment. Despite the overall high endorsement of positive attitudes, there was sufficient variability to explore our hypotheses.

Having an early childhood mental health consultant (MHC) in the center was associated with positive attitude about mental health screening but not with perceived knowledge. This finding is consistent with previous research focused on educational settings for children with a diverse set of disabilities, in which supporting the teacher's ability to meet the child's needs is associated with a positive attitude toward educating children with disabilities (Avramidis & Kalyva, 2007). Prior research on early childhood mental health consultation has demonstrated that teachers see the MHC as a valuable resource and source of support (Heller, Boothe, Keyes, Nagle, Sidell, & Rice, 2011). These findings suggest that experience with an early childhood mental health consultant may increase teachers' sense of support

around mental health issues and may promote a positive view of mental health screening in early care settings.

The primary goal of Study 2 was to examine changes in attitude toward and perceived knowledge about screening following training. Our results indicate that the training was useful in modifying self-reported attitudes and perceived knowledge related to mental health screening. The fixed curriculum and use of locally based trainers, which have been identified elsewhere as characteristics of effective child care provider training, may have been important factors contributing in the effectiveness of the training (Fukkink & Lont, 2007).

The finding that changes in attitude and knowledge were not associated with specific background variables highlights the potential for training to influence attitudes and perceived knowledge about screening across the boundaries of roles in child care settings, experience, and education. This finding is also in line with prior research that found that professional education seminars or workshops had more impact on classroom quality than teacher education or years of experience (Honig & Hirallal, 1998). The strongest predictor of change in attitude and knowledge was the pre-training measure; this finding emphasizes that less positive attitude toward screening or less knowledge about screening did not reflect a fixed negative perspective toward screening.

Some limitations warrant discussion. First, a substantial proportion of respondents did not complete every item of the pre-training and post-training questionnaires. The only significant difference between the completers and noncompleters was race, with Caucasian child care providers being more likely to complete both questionnaires than child care providers of other races. Differences by race in participation in mental health projects are not unique to this project (U.S. Department of Health and Human Services, 1999), but further assessment of how cultural factors influence responses to the training and the questionnaire is warranted. Because of the importance of culture in defining both child development and beliefs about mental health (Zeanah & Smyke, 2008; dosReis, Mychailyszyn, Myers, & Riley, 2007), training programs may require adaptations that address the cultural beliefs of learners in different communities. Additionally, this project did not allow for effective reliability assessment. More formal assessment of test-retest reliability would strengthen the generalizability of the findings, although the correlates suggest some concurrent validity, as do the factors.

With any training assessment, the potential for social desirability response bias exists; respondents may provide responses that they think are socially appropriate rather than those that reflect their beliefs, especially immediately after training. Prior research has found that teachers may revert back to former behaviors when a post-test is delayed rather than administered immediately after training (Honig & Martin, 2009). This bias cannot be ruled out in our study. However, the differential changes in scores between the two scales (0.18 points per item on the attitude scale versus 0.32 points per item on perceived knowledge) suggest that something more

than response bias played a role in the change between pre- and post-training.

This study is also limited by a potential threat to internal validity due to pretest sensitization (Campbell, Stanley, & Gage, 1963); that is, participants' scores may have increased merely by being exposed to the pretest. Future research should include a control group to rule out the possibility of this effect.

Implications for Practice

Experience with an early childhood mental health consultant seems to have a positive impact on both child care providers' attitudes toward screening and their perceived knowledge regarding mental health screening in young children. An early childhood mental health consultant can support a teacher in creating an environment that fosters social-emotional development and can assist with the inclusion of children who have mental-health-related special needs. Ideally, a center would seek out an early childhood mental health consultant to lead any training on mental health screening in very young children. Although the number of individuals trained to provide mental health consultation in early childhood settings is increasing, programs in some geographical areas have no access to early childhood mental health consultants. From our work in the child care community, we know that financial and professional resources can be limited. Often, a center director must create and provide training sessions herself. We believe a well-prepared director could provide adequate training on mental health screening, especially given the large number of related resources available on the Internet (e.g., from the Center on the Social and Emotional Foundations for Early Learning at <http://csefel.vanderbilt.edu>, Early Head Start National Resource Center at <http://eclkc.ohs.acf.hhs.gov/hslc/tta-system/ehsnrc/center>, National Association for the Education of Young Children at <http://www.naeyc.org>, and the Ages and Stages Questionnaire at <http://www.agesandstages.com>). Our findings suggest that providing training on the importance of screening and on how to screen helps staff to develop more positive attitudes and greater perceived knowledge about the screening process, which should support smoother screening implementation processes for identifying children in need of additional support.

Interestingly, expulsion rate was inversely associated with knowledge but not attitude. This finding suggests that training or mental health consultation may help to decrease expulsion rates by addressing knowledge gaps about children with special needs, including mental health needs. This finding is in line with prior research that has found that child care programs with access to a mental health consultant had fewer expulsions than programs without such access (Gilliam, 2005).

Future Research

Our findings invite multiple lines of further research. Examining longer-term effects of training will be a valuable pursuit. For example, post-assessment done months after the training could examine the durability of lasting early change and limit social desirability effects. Another question

would be if positive attitude or perceived knowledge would differ based on whether the director or a mental health professional administers the training. In addition, research on families' attitudes toward screening in child care settings would be beneficial, as would studies focused on cultural issues and populations affected by health disparities in mental health screening. Perhaps most importantly, future studies should focus on whether changes in attitudes and knowledge are associated with specific changes in caregiver behavior, such as implementation of a screening project and increased testable knowledge about early childhood mental health.

Conclusions

Early childhood mental health screening in child care settings is an innovative and important opportunity to identify children in need of further mental health assessment and possibly treatment. In our study, child care providers were generally positively inclined toward participating in mental health screening, and their attitudes and perceived knowledge about mental health screening increased after a single 3-hour training session. Despite some methodological limitations of this preliminary study, we believe that our findings offer an important first step toward understanding the attitudes and perceived preparedness of child care providers toward mental health screening.

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Appendix

Factor Loadings of Individual Items on the Survey*

This scale is designed to assess a variety of beliefs that you may or may not hold as a child care professional. Statements representing these beliefs are listed below. Next to each statement, circle the number that most closely represents your agreement or disagreement with the statements.

		Factor	Factor 1 Loading	Factor 2 Loading
1.	It is not a child care center's responsibility to have discussions about emotional or behavioral issues.	1	.55	
2.	I do not believe that child care professionals can offer much for children with emotional or behavioral issues.	1	.63	
3.	Emotional and behavioral issues are private and should be discussed only within the family.			
4.	There is a lack of evidence that screening can be beneficial to children.	1	.56	
5.	I do not believe I can be helpful if a child has an emotional or behavioral issue.	1	.64	
6.	I am comfortable discussing emotional or behavioral issues with parents.			
7.	I believe that screening for emotional and behavioral issues should be a priority in my child care center.	1	.55	
8.	I worry that families will find screening for emotional and behavioral problems offensive.			
9.	I believe that screening for emotional and behavioral issues is not very important in the child care setting.	1	.54	
10.	I have sufficient training to screen for emotional and behavioral issues.	2		.67
11.	I am aware of the confidentiality requirements when screening for emotional and behavioral issues.			
12.	I do not know what to do if I think a child has emotional or behavioral issues.	2		.67
13.	My center has a strong commitment to identifying emotional and behavioral issues in children.			
14.	I am reluctant to screen for emotional and behavioral issues because I do not want to get stuck in a complicated family discussion.	1	.69	
15.	There is a specific policy for screening for emotional and behavioral issues in my center.			
16.	In young children, "social-emotional" problems are really just parenting issues.	1	.59	
17.	I know how to identify resources in my area to evaluate children who may have emotional or behavioral issues.	2		.64
18.	Screening for emotional and behavioral issues is just a way to put children on medications.	1	.58	
	Cronbach's Alpha		.79	.60

*Only those factors loading above 0.5 are reported.

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Pathways to Bilingualism: Young Children's Home Experiences Learning English and Spanish

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Abstract

Nowadays, more and more young children in the United States have the experience of speaking a language other than English at home, and many parents choose to educate their children bilingually. This study explored the home-language experiences, in English and Spanish, of three young Latino girls ages 15 months, 16 months, and 30 months, respectively, when the study began. They were observed at home between 40 and 70 hours for 30 months. Three questions guided the study: (1) What languages are used at home and for what purposes? (2) Who addresses the participant children in English and Spanish? and (3) How do the participants express themselves in English and Spanish? The data suggest that the three participants received input in English and Spanish based on the bilingual characteristics of the families. However, as they grew older and their proficiency in English improved, the input in Spanish diminished, as well as their ability to speak Spanish. At the end of the study, the three participants understood English and Spanish, one spoke English and Spanish when prompted, one spoke only in English, and another one spoke in both languages without being prompted. This study suggests that raising children bilingually may require support of the minority language outside the home, with collaboration among the schools, the families, and the community.

Introduction

Despite being a nation made up of immigrants coming from many different countries and speaking many different languages, American society has not supported or encouraged bilingualism (Crawford, 1999). However, early childhood organizations such as the National Association for the Education of Young Children (NAEYC) and the Office of Head Start have long advocated for early childhood programs and teachers that respect, value, and support young children's native languages (NAEYC, 1995). Recently, the Office of Head Start (2008) in the Dual Language Report pointed out that educating young children whose primary language is not English requires embedding the connection among language, culture, and learning needs into all aspects of a Head Start program (p. 6). The report concludes that Head Start programs should promote the native language of the young child because "ultimately, effective program support for promoting dual language acquisition in children will result in more children eager to learn in Head Start as well as more children being prepared to begin school ready and eager to continue learning - an investment well worth making" (p. 4).

Many mainstream families, in general, and immigrant families, in particular, agree with this position and express strong interest in raising their children bilingually for a variety of reasons. Many families believe that children who are bilingual will be able to communicate with parents and other family members who do not speak English; they will benefit from the cognitive, academic, and social advantages of being bilingual; and they will also have improved employment prospects. In addition, families expect that by raising their children bilingually, they can maintain the family's heritage language and culture (Bialystok, 2001; King & Mackey, 2007; Yoshida, 2008).

Research on bilingual development in early childhood addresses (1) the language development of children in two or more languages and its relation to their cognitive and sociocultural development (Bialystok, 2001; Yoshida, 2008) and (2) the role of the home, the community, and society in educating children bilingually. Given the importance of the social context in language development, more research is needed to uncover the diverse linguistic input that young children receive from the various social networks that they are in contact with, for example, the immediate and extended family, friends, neighbors, and caregivers (Hamers & Blanc, 1995). The purpose of this study was to explore the different ways in which three young girls learned English and Spanish during their early childhood years.

The study was guided by Vygotsky's theory of human development, which highlights the essential role of social interactions in culturally specific contexts in the development of language (Vygotsky, 1978). Language socialization research across cultures conducted by Schieffelin and Ochs (1986) confirmed long ago the importance of interactions in socializing young children into language - and through a specific language into a culture. More recently, neuroscience research using the tools of modern technology revealed the strategies that babies use to learn language(s), which include pattern perception, computational skills, and social interaction, which "plays a more significant role in early language learning than previously thought, at least in natural language-learning situations" (Kuhl & Rivera-Gaxiola, 2008, p. 518). In fact, babies learned words and phonemes in a foreign language only when exposed to the language through book reading and play with native speakers, but they did not learn the language when exposed to the same sounds and words through television or audio-only tutors.

Methodology

This study addressed the following questions: (1) What languages are used at home and for what purposes? (2) Who addresses the participant children in English and Spanish? and (3) How do the participants express themselves in English and Spanish?

Three families were recruited who expressed interest in raising their children bilingually and had children between 15 months and 3 years of age. The researcher knew one of the families from a previous study and met the other two families through a friend and in a doctor's office.

Data Collection and Analysis Methods

Data collection involved participant observation, audiotapings, informal conversations, and interviews with all family members. For the purpose of this paper, only the fieldwork notes, audiotapings of the focus children, and informal conversation with the family members were analyzed. The home visits were scheduled after calling the family to decide on a convenient time for the family and the researcher. At the beginning of the study, two of the participants only spoke a few words each, and most observations were audiotaped and complemented by the researcher's notes.

The data analysis was performed in three phases. The first phase involved typing the field notes and the transcripts of all recorded tapes made during participant observation. Next, data were highlighted for each participant using the research questions as the initial categories, namely: (1) input provided in English and in Spanish, (2) the source of the input, and (3) participants' expressive language in English and Spanish. Subsequent readings of the notes and transcripts led to preparing charts to record all the data related to each of the categories for each of the participants. In the third phase, the focus shifted to analyzing the data in order "to make sense of what is going on" (Wolcott, 1994, p. 10). This analysis involved identifying patterns of interactions between the family members and each participant, similarities and differences in patterns of interactions among participants (with particular attention to changes occurring over time), and "key factors and relationships among them" (p. 10) that contributed to the understanding of the data.

Participant Families and Children's Characteristics

At the beginning of the study, the three participants - Josefina Cortés, Kayla Jiménez, and Thais Velázquez (pseudonyms chosen by the families) - were 16 months old, 15 months old, and 30 months old, respectively. Josefina lived with her mother, father, and her 11-year-old brother. Josefina's parents were born in the Dominican Republic and immigrated to the United States when they were in their teens. Josefina and her brother were born in New York City. Josefina's mother was fluent in Spanish and understood and spoke some English; her brother and father were bilingual. Mr. Cortés holds a bachelor's degree, but his work is not connected to the degree. Mrs. Cortés has a high school diploma and works as a home attendant. Josefina was observed at home for about 40 hours over a period of 30 months. At the beginning of the study, for about 6 months, I observed Josefina in the morning, when she was at home with her mother. For the last 2 years of the study, I observed her in the afternoon or on Sunday mornings when all the family members were at home, and occasionally I observed her with other family members, like Josefina's maternal grandfather, aunts, uncles, and cousins.

Kayla's family included her mother and father and her 4-year-old sister. Kayla's mother was born in New York City from Dominican and Puerto Rican parents. Her father was born on a Caribbean island and immigrated to the United States when he was a teenager. Kayla's mother and sister spoke both English and Spanish; the father spoke English. Mr. and Mrs. Jiménez hold bachelor's degrees and worked in education. Since Kayla was 10 months old, she had spent about 8 hours a day, 4 days a week, with her

great-grandmother, who talked to her in Spanish, although she understood and spoke some English. During the last 10 months of the study, the family lived with the great-grandmother. Kayla was observed in the morning and early afternoon for about 50 hours over a period of 30 months, mostly but not exclusively in her great-grandmother's home and in her great-grandmother's presence. Occasionally, Kayla's mother, sister, and father were also at home, as well as cousins, grandparents, and aunts.

Thais lived with her mother and two teenage brothers. Mrs. Velázquez was born in the Dominican Republic and immigrated to New York City when she was 18. Mrs. Velázquez finished the 11th grade. She worked as part of the welfare program. Mrs. Velázquez's three children were born in New York City. Thais's mother spoke Spanish and understood some English. Thais's brothers were fluent in English and Spanish. Thais was observed at home once a month over several months, totaling about 70 hours. I observed Thais in the early afternoon when her mother and sometimes her brothers were home. On a few occasions, other family members, such as the maternal grandmother and cousins, and family friends were present.

Language Used at Home - with Each of the Participant Children and by Each of the Children

Each family expressed interest in educating the youngest members of the family bilingually. Also, in all families, the oldest siblings and at least one member of the family were bilingual. But the language of everyday conversation at home was dictated by the native language of the parents. In addition, attending or not attending child care before or at 3 years of age had an impact on the focus children's language development in two languages.

Josefina Cortés's Language Input

In the Cortés's home, Josefina's input at home was mostly in Spanish until she was about 3 years of age. Conversation at home between the three members of the family and the researcher was always in Spanish, and according to the parents, it reflected what was going on at home on a daily basis even when the immediate family was with other family members, who were also Spanish speakers, on weekends. Josefina watched TV in Spanish with her mother - for example, a soap opera that Mrs. Cortés watched when she had time in the evening. Also, during Josefina's first two years, she spent time each year in the Dominican Republic (about a month) with her Spanish-speaking family. Since the age of 2 until 2½ years, she attended, for about 5 hours a day, a family child care program where she was addressed in Spanish.

During this time, Josefina also received input in English at home. At age 16 months and until she was 2 years of age, she watched approximately 3 hours of TV cartoons in English, often alone and at times with her family. English was also used at home to teach Josefina numbers, letters, greetings (hello, bye bye), and manners (thank you). Some words in English such as Pampers, yummy, yes, hi, oh man, and I love you were often used when the conversation was in Spanish. At 2½ years of age, Josefina attended a different child care program for at least 8 hours a day, and, at her mother's

request, she was addressed in English. Also, when Josefina initiated conversations in English, which started at age 3 years 4 months, the tendency was for her father, at times, and especially her brother, to respond in the same language.

Josefina Cortés's Use of Two Languages

Josefina's use of each language went from initiating her interactions exclusively in Spanish to using English almost exclusively, even when she was addressed in Spanish. At 16 months, Josefina spoke a few words in Spanish: papi (dad), mami (mom), pipí, (pee), Etete (name that she gave to her brother), and in English: hi and hello. She also tried to talk by saying ei, ei, and then when anybody in the room paid attention to her, she would make unintelligible noises with the intonation of asking a question or making a statement. She was also able to repeat words in English (e.g., oh man, thank you, yummy, Pampers) and Spanish (mimí for dormir (sleep), mua, mua for un beso (a kiss), and qué lindo! (how nice), but she did not use these words on her own.

At 2 years of age, she had added several words to her vocabulary in Spanish - hola (hello), jugo (juice), io for sucio (dirty), chichí (baby), pan (bread), sopa (soup), vamos (let's go), mimí for dormir (sleep), leche (milk), and qué lindo! (how nice). She now called her brother Tete and used a sentence in Spanish - "Qué te cae!" [sic] (You are going to fall down) - and would tell her father, "Papa bye, bye." She also used English, for some numbers, and she could say oh man, thank you, Pampers, and I love you. Until Josefina was 3 years and 4 months of age, she continued adding vocabulary in Spanish and English, but she initiated the conversation in Spanish and used some sentences in English such as "What is this?"; "Open your mouth"; "Oh my God!"; "Give me"; "I did it"; and "Let's go"; and she sang some songs like "Happy Birthday."

The shift to initiating interactions more often in English than in Spanish was clear when I arrived for one of my last visits. Josefina's mother was not yet at home, and Josefina said to me at the door, "Mommy is coming soon." Mr. Cortés noticed this change and told me with surprise, "Ella habla más inglés por el day care, porque allí todo es en inglés. Aquí su madre le habla en español y yo también pero éste (por su hijo) no." (She speaks more English because in the day care, everything is in English. Here [at home] her mother talks to her in Spanish and me too, but her brother does not speak to her in Spanish.) Josefina's next phase was to answer in English questions asked of her in Spanish or to continue a conversation in English that was initiated in Spanish. Josefina's father described the new situation and told me, "Su mamá y yo que le hablamos en español pero ella contesta en inglés. Josefina no quiere hablar español y yo le digo que se lo voy a decir a Victoria." (Josefina's mother and I talk to her in Spanish, but she answers in English. Josefina does not want to speak Spanish, and I tell her that I am going to tell Victoria [the researcher].)

When she was 3 years 8 months old, I was reading aloud a story in Spanish about a little mouse. I asked her questions about the pictures, and she spontaneously volunteered some comments. This is the conversation in Spanish:

R: ¿Dónde tiene los dientes ella? (Where are her teeth?)

J: En la mouth. (In her mouth.)

R: ¿Dónde está el rabito? (Where is her tail?)

J: Right there.

While I am reading, she says on her own “got eyes.”

R: Sí tiene ojos ahí, sí y ¿qué más tiene? (Yes, she has eyes there, and what else does she have?)

She says something that I can't hear.

R: Sí tiene una boca y ¿qué más tiene? (Yes, she has a mouth there, and what else does she have?)

J: Mouth.

R: ¿Qué es eso? (What is that?)

J: Mouth.

R: Esa es la nariz. (That is the nose.)

I continue reading in Spanish, and Josefina volunteers “is a house.”

At the beginning of the study, Josefina, age 16 months, initiated interactions and expressed her wants and needs using one-word utterances in Spanish. She also used some words in English. At the end of the study, at age 3 years 10 months, Josefina understood English and Spanish. But she initiated interactions more often in English than in Spanish, and she would usually respond in English to questions or conversations initiated in Spanish. She also stated some letters, shapes, and most colors in English and some numbers in English and in Spanish, and she sang songs such as “Twinkle, Twinkle Little Star,” the “ABC Song,” and “The Wheels on the Bus.”

Kayla Jiménez's Language Input

For Kayla, the main linguistic input at home was in English. Kayla's mother, father, and older sister were fluent in English, and English was the language of daily interaction and communication. However, Kayla also received daily input in Spanish. Kayla was cared for by her great-grandmother, who, especially at the beginning of the study, always addressed Kayla in Spanish. Conversation between Kayla's great-grandmother and the researcher, by the way, was always in Spanish - the language her great-grandmother was more comfortable with. Also during the visits, the TV set in the living room was always on Spanish-language channels. When Kayla wanted to watch TV, she would ask her great-grandmother to turn on the TV in her bedroom, and she would watch cartoons in English. But she watched her favorite cartoon Dora the Explorer in Spanish every Saturday. Also Kayla's mother and sister addressed her sometimes in Spanish. For example, Mrs. Jiménez stated that she always reprimanded and comforted her daughters in Spanish. Kayla's sister was more reluctant to talk to her in Spanish because she did not understand why she had to talk to her sister in Spanish if Kayla spoke English. But she would address her great-grandmother in Spanish, especially if the great-grandmother did not understand her in English. In addition, at age 3, Kayla started attending child care where, at her mother's request, one of the caregivers taught her the numbers, colors, and shapes in Spanish.

The input in Spanish provided by Kayla's great-grandmother somewhat decreased as Kayla started using more English than Spanish. She had a tendency to use the words that she knew in English to make sure that Kayla understood her. Yet, most of the input that Kayla received in Spanish was from her great-grandmother. I made an effort to try to talk to Kayla in Spanish, but it was difficult to always answer in Spanish when Kayla expressed her wants and needs always in English.

Kayla Jiménez's Use of Language

During the first 7 months that I observed Kayla, when she was between 15 and 22 months of age, she used words in English and Spanish - but more in Spanish than in English. Words in Spanish included *ela* or *bela* for *abuela* (grandmother), *mama* (mommy), *linda* (beautiful), *aquí* (here), *nada* (nothing), *mimí* for *dormir* (sleep), *agua* (water), *más* (more). In English, she said *daddy*, *nice*, *jush* for *juice*, *eat*, *no more*, and *my friend*. After 22 months of age, Kayla started using two-word sentences in English, and her English improved in terms of the use of new words and longer sentences. At age 22 months until age 30 months, she continued using a few words in Spanish such as *bela* or *buela* for *abuela* (grandmother), *titi* (auntie), *pan* (bread), *de nada* (you're welcome). After 30 months of age, Kayla did not use words in Spanish while the researcher was visiting. By that time, she systematically continued a conversation in English that was initiated in Spanish. At age 3 years 4 months, Kayla understood English and Spanish but basically spoke English and a few words in Spanish. Kayla's mom compared Kayla's proficiency in Spanish with her sister's and stated that, when Kayla was addressed in Spanish, she would always answer in English. Her sister, however, would answer in the language in which she was addressed, Spanish included, especially if she knew that her interlocutor did not speak English.

Thais Velázquez's Language Input

At the onset of the study, Spanish was the language used in Thais's home to communicate; Mrs. Velázquez spoke only Spanish, and her older children were fluent in it, too. The TV set in Mrs. Velázquez bedroom, where Thais slept and spent many hours, was always on Spanish-language channels. Thais's siblings talked to each other more often in English than in Spanish; music and TV in their bedroom was always in English, but they always addressed their sister in Spanish until Thais turned 3½. Thais was also in contact with other family members such as uncles, aunts, and cousins, as well as friends who always addressed her in Spanish.

Thais also received input in English. From the time she was 2 until she was 3½, she was cared for by her mother. Thais watched *Barney*, her favorite TV show, in English every morning. She was observed watching *Barney* videos over and over again. She also enjoyed the cartoons *Tom and Jerry*, *Scooby-doo*, and occasionally *Power Rangers* and *Sponge Bob Square Pants*.

When Thais was about 3½ years old, her mother started working and tried to enroll her in a prekindergarten class. Thais was not admitted because no spaces were available, and she was cared for by several babysitters who

addressed her in Spanish and by a family friend. The friend's three grandchildren - a 4-year-old girl and twin 8-year-old boys - addressed her in English. Thais spoke Spanish with the babysitter but played in English with the children, especially the 4-year-old girl. She also watched cartoons, *Dora the Explorer*, and *Franklin*.

Also, Thais's older brother told the researcher that he had started talking to her in English and Spanish to get her ready for school because, according to him, "Now most parents talk to their kids in English so if she [Thais] goes to school only speaking Spanish she is like an outcast."

Thais Velázquez's Use of Language

At the beginning of the study when Thais was 2 years 6 months, she always expressed her wants and needs in Spanish. She tried very hard to involve the researcher and her brothers in playing ball and in hide and seek, her favorite games. She screamed "Dame la bola" (Give me the ball) when she was not getting the ball as fast as she wanted and encouraged the player to send it back to her saying *pújalo* instead of *empújala* (push it). She showed her toys with pride - "Mira lo que yo tengo" (Look at what I have) and was eager to show that she could ride the tricycle saying "¿Tú quieres que yo monte mi bicicleta?" (Do you want me to ride my bicycle?). She watched soap operas in Spanish and asked questions about the show such as "¿Verdad que Tony Montán está muerto?" (Is it truth that Tony Montan died?) or stated, "Acabó Juan José" (Juan José is over) meaning that the soap opera was over. Thais also showed interest in shows in English and asked her brother to change the channel to *Scooby-doo* saying, "Yo quiero *Scooby-doo*" (I want *Scooby-doo*). She also was observed at 2 years 8 months saying thank you when she was given something.

At 3 years of age, Thais was really confident in her ability to speak Spanish to the point that she tried to correct the researcher. I asked her, "¿Tu no tienes calor así vestida?" (Aren't you warm dressed like that?) And she told me, "Eso no se llama vestido se llama falda" (That is not called a dress, that is called skirt.) She did not know that *vestida* means dressed and heard *vestido* (dress) instead. Between 3 years and 3 years and 6 months, Thais continued speaking mostly Spanish, and according to her mother, she was not really talkative until she was 3 years of age. She spoke Spanish well except for some words like *bochando* for *abrochando* (to button up), *bibirón* for *biberón* (baby's bottle), *estógamo* instead of *estómago* (stomach), and she made mistakes such as "Mami me poní chancletas" instead of "Mamá me puse chancletas" (Mom, I put on my slippers) and *dicio* instead of *dijo* (he/she said).

From 3 years 6 months to 4 years of age, Thais was a fluent speaker of Spanish with the typical mispronunciation of certain words, "Yo tengo una bahía" instead of "Yo tengo una herida" (I have a wound) and grammatical errors such as "Anoche tu vas a venir" (Last night you will come) instead of "Mañana tu vas a venir" (You will come tomorrow).

She was also aware that she spoke Spanish and of the phonological differences between the Spanish that the researcher spoke and the Spanish that she spoke. For example the researcher said to her that *Dora*, the main character in *Dora the Explorer*, spoke Spanish, and Thais said, "Yo

también” (Me too). Thais was having lunch and said that the food had *sasón* (seasoning); the researcher said *sazón* (using a *th* pronunciation for the *z*), and Thais said no, *sasón*.

During this time, she added several words to her vocabulary in English. She often used please, sleep, closet, I am sorry, yellow, you're welcome, bye bye, and ice cream, which she pronounced ice quis. She also sang two songs: “Happy Birthday” and “I Love You.”

At 4 years of age, Thais used sentences such as “What are you doing?”; “You can’t see me I can’t see you”; “Stop talking to me, funny”; “What hand is the ball in?”; “Look, look I fly.” She continued playing hide and seek but in English.

It was difficult for the researcher to evaluate Thais’s proficiency in English because she always interacted in Spanish. However, by the time that Thais was 4 years 6 months old, according to her mother, “Thais ahora habla en español y en inglés” (Thais now speaks Spanish and English). Also Thais passed the English test administered by the New York City Department of Education and was placed in a monolingual English kindergarten class at age 5. Thais’s mother told me that Thais spoke English when she was enrolled in kindergarten because of her interaction with the babysitter’s grandchildren more than for what she had learned with her brothers. This experience contributed to her ability to pass the English test of the New York City Department of Education.

Discussion

This study revealed some strategies used to promote bilingualism in the homes of young children, how these strategies were implemented, and the kind of exposure to two languages that these children had when they attended school. However, the results cannot be generalized to all young Latino children being educated bilingually because of the small number of participants and how they were selected and because the participants were all female and the youngest in their families.

Each family had a different pattern of language use at home, dictated, in part, by the linguistic characteristics of each of the members of the family, especially the mother and father. During the first two years of life, Josefina and Thais were addressed in Spanish almost exclusively because that was the language that the parents spoke the most competently. In contrast, although Kayla’s mother and sister were bilingual, she received most of her input in English because her father did not speak Spanish. However, during the first two years of life, Josefina and Thais received some input in English and Kayla received some input in Spanish. Josefina and Thais were exposed to English through watching cartoons on TV and also through speaking with their siblings, who spoke English. Kayla’s exposure to Spanish came through her great-grandmother, who took care of her and spoke mostly Spanish to her.

The data, however, suggest that as the three participants grew older and their proficiency in English improved, the input provided to two of the participants in Spanish diminished and so did the opportunity to become balanced bilinguals. At the end of the study, the three participants understood English and Spanish. Josefina spoke English and Spanish only

when prompted, Kayla spoke only English, and Thais was fluent in both languages.

The results of this study suggest that in order to raise bilingual children, families need to make sure that the children receive adequate exposure to each of the languages. Speaking the minority language at home may not be enough, not only because when children start going to school or to child care the time at home decreases, but also because once children learn English, they are more motivated to speak the majority language than the minority language. Therefore, in order to raise children bilingually, the minority language may have to be supported outside the home, for example, in the community and in the schools (Genesee, 2008).

The ideal learning situation would be to enroll the child in a dual-language program. The lack of early childhood bilingual programs underscores the cultural and political climate of our country regarding bilingualism and may explain, in part, the academic difficulties of school-age English language learners who are not given the support and time to learn two languages (Gándara & Rumberger, 2009; García & Scribner, 2009). Bilingualism in early childhood, however, can be supported in programs that, as recommended by the NAEYC (1995), respect and value minority languages and cultures. Early childhood programs can show that they respect and value the native language of young children by implementing a number of strategies:

Addressing the negative attitudes that personnel may have about minority languages, given society's misunderstandings regarding bilingualism.

Informing parents and teachers about the advantages of bilingualism and the challenges of becoming bilingual.

Encouraging parents, siblings, and extended family to speak the native language at home.

Providing materials such as books, music, and videos in the different languages.

Hiring personnel who speak English and the minority languages represented in the center.

Using the minority languages not only to translate when parents do not speak English but also in the classroom.

Providing parents and teachers with knowledge about first- and second-language acquisition and the time most children need to attain academic proficiency in English.

Making teachers and parents aware of what research has shown regarding how proficiency in one's native language supports English language learning.

Parents who express interest in their children being bilingual may not be aware of the challenges that the children face in order to maintain two languages. This study suggests that parents need to be made aware of the challenges that they face if they want their children to be proficient in two languages, as well as ways of addressing the challenges at home, in school, and in the community (Rodríguez, 2008).

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Perspectives of Play in Three Nations: A Comparative Study in Japan, the United States, and Sweden

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Abstract

This reflective paper discusses findings about differences and similarities in perspectives on play among early childhood educators in Japan, the United States, and Sweden. Analysis of survey data collected from educators in those nations yielded six themes regarding the meanings and uses of play: (1) process of learning, (2) source of possibilities, (3) empowerment, (4) creativity, (5) child's work, and (6) fun activities. Processes of learning, fun activities, and creativity were the universal themes of play that emerged during analysis. Japanese and Swedish teachers related play to the theme source of possibilities, but American teachers did not. The theme play as child's work was represented in the American and Swedish teachers' notions of play but not in those of the Japanese teachers. The theme of play as empowerment differentiated Japanese teachers from the others. Japanese and Swedish teachers reported offering unstructured play to children, while their American counterparts did not. Two themes emerged in the participants' responses regarding adult play: "state of heart" (state of mind) and positive feelings. Although American and Japanese teachers associated playfulness with a "state of the heart/mind," their Swedish counterparts did not indicate such associations. Teachers from all three nations did, however, agree that playfulness involves and promotes positive feelings.

Introduction

Research regarding play is complex, and culture is a key factor in determining how people in different nations view play. People with different cultural backgrounds tend to pay attention to different characteristics of the same phenomena (Azuma, 1986); because teachers' perspectives on play are influenced by their own cultures, these perspectives vary widely. Teachers' perceptions of play affect children's experiences in their classrooms. Thus, we felt, as scholars doing research in Japan, Sweden, and the United States, that comparing teachers' perceptions of play in those countries could provide insights that might expand the discourse about play in those countries and internationally. We also felt that our findings could prove

useful to those who wish to design effective early childhood education programs.

We anticipate that our research on perspectives on play expressed by American, Japanese, and Swedish early childhood educators can provide a basis for reflection and understanding among the educators in these nations who, in spite of cultural differences, all recognize play as essential in children's development and learning (Izumi-Taylor, Rogers, & Pramling Samuelsson, 2007).

Multiple Contexts of Our Research

Official Perspectives on Play in Japan, the United States, and Sweden

The importance of play in Japanese early childhood education can be seen in the National Curriculum Standards for Kindergarten (NCSK) set forth by the Japanese government (Ministry of Education, Culture, Sports, Science, and Technology, 2000), which state the following goal:

To comprehensively achieve the aims outlined in Chapter 2, through the instruction centered around play, based on the consideration that play as voluntary activity of children is an important aspect of learning which cultivates foundation of a balanced mind and body development. (p. i)

The NCSK also describe how play provides children with the "foundation for a zest for living" (Ministry of Education, Culture, Sports, Science, and Technology, 2000, p. ii), and through the use of play, the NCSK list the following developmental skills to be nurtured in children - physical, emotional, social, and language. Because the Japanese view consideration of others to be important in their lives (Markus & Kitayama, 1991), one focus of Japanese early childhood education programs is on providing group-oriented environments where children learn to play harmoniously with others (Izumi-Taylor, 2008; Izumi Taylor, 2004). Japanese early childhood education is based on the idea that children construct their own knowledge through play by interacting with their environments, and that these environments are part of group-oriented and caring communities (Izumi-Taylor, 2008; Muto, 2004; Izumi Taylor, 2004).

Although no federal guidelines that correspond to the NCSK exist for early childhood education programs in the United States, play is considered by many in the field to be the best mode for children's learning and development (Kieff & Casbergue, 2000; Rogers & Izumi Taylor, 1999). The National Association for the Education of Young Children (NAEYC), in its third revision of the book on developmentally appropriate practice (DAP) (Copple & Bredekamp, 2009), notes that "Play is an important vehicle for developing self-regulation as well as for promoting language, cognition, and social competence" (p. 14). The main tenets of DAP describe how children learn best through play. However, in recent years, the pressure to meet standards of learning for knowledge and skills has led many teachers and administrators to strive to enhance children's performance on tests that demonstrate accountability (Astuto, 2007; Nourot, 2005; Van Hoorn, Nour, Scales, & Alward, 2007). To meet high standards for knowledge and skills, the curriculum may be focused only on content rather than on the

developmental learning needs of children. One result is often the elimination of play, recess, field trips, or physical education in favor of more “academic” activities.

According to the Swedish National Curriculum for Preschool (Ministry of Education and Sciences, 2006), play is a central concept in the Swedish curriculum that aims to nurture children as persons and learners. The current national curriculum states:

Play is important for the child’s development and learning. Conscious use of play to promote the development and learning of each individual child should be an omnipresent activity in the preschool. Play and enjoyment in learning in all its various forms stimulates the imagination, insight, communication, and the ability to co-operate and solve problems. Through creative and imaginary games, the child will get opportunities to express and work through their experiences and feelings. (p. 6)

Early Childhood Credentials in Japan, Sweden, and the United States

In order to teach in early childhood settings in Japan, teachers need to have 2-year associate degrees in early childhood education. Japanese early childhood education college programs offer two kinds of degrees: one for working in child care centers and the other for working in programs that are the equivalent of U.S. preschools (that is, with children ages 3-5) (Izumi Taylor, 2004).

In Sweden, preschool teachers need to have a 3½-year university degree.

In the United States, policies may vary from state to state and setting to setting, but in general, teachers need to have bachelor’s degrees to teach in kindergartens and in many state-funded prekindergarten programs but not in child care centers. Child care teachers ages 18 years and older who hold high school diplomas can obtain the Child Development Associate credential that indicates competencies in caring for young children.

Our Previous Studies of Teacher Perspectives on Play

In spite of the current emphasis on the importance of play in early childhood settings (Van Hoorn, Nourot, Scales, & Alward, 2007), few studies have shown how teachers in different cultures view play. We base our reflections in this paper on a comparative study that grew out of our earlier work in Japan, the United States, and Sweden. The purpose of the research discussed here was to examine similarities and differences in the perceptions of play among early childhood educators in Japan, the United States, and Sweden.

Izumi Taylor and colleagues (2004) examined American and Japanese teachers’ perceptions of play and found that teachers in both countries “used the rhetoric that is congruent with the current zeitgeist of developmentally appropriate early education” (p. 311) and that their perceptions of play were clearly related to their cultures. Those findings suggested that Japanese teachers offered children play in classroom environments that reflected an orientation to the needs of the group, while their American counterparts did not. Japanese teachers perceived children’s play as reflecting “the power of living” (“the basic foundation of their feelings, desires, and attitudes”)

(Izumi Taylor et al., 2004, p. 315), while the American teachers tended to think of play as related to learning and development. The same study found that Japanese children engaged in more unstructured play than did their American counterparts.

When American and Japanese teachers responded to the inquiry “Tell me about play in your classroom,” the majority of Japanese teachers described what their children did in the classroom as related to unstructured play. Unstructured play included children initiating play and having many choices as well as a long play period. Both American and Japanese teachers believed that the effects of play on children included cognitive, social, emotional, and physical development. When asked to describe their notions of adult play, teachers in both nations wrote that adults play for enjoyment. Japanese teachers further elaborated by defining playfulness as the state of one’s heart (spirit, mind, lightheartedness), whereas their American counterparts tended to describe playfulness in terms of “fun feelings.”

In a related Swedish study, Johansson and Pramling Samuelsson (2006) examined integration of play and learning as a whole into preschool programs. Teachers received inservice training about integrating play with learning when working with children. During analysis of subsequent interactions between teachers and children, the following three categories of interaction were noted: exploratory interactions, narrative interactions, and formal interactions. In the first two categories, play and learning were closely related to each other, although some differences were noted between the two. For example, exploratory interactions appear to include challenges to innovation and creativity, and narrative interactions have the tendency to build a joint effort between children and teachers. In the third category of interaction (formalistic), the interactions were typically driven by teachers trying to guide children to “a correct answer,” a category in which play and learning were strongly separated. The Swedish teachers involved in the study held the following concepts of play and learning: (1) children will always learn when playing; (2) through play, children work on what they already learned in preschools; and (3) children can define the play aspect in learning and the learning aspect in play.

Comparing Teachers’ Perspectives on Play in Three Cultures

Conducting the Research

The American and Japanese data were collected by the first author in 2004, and the Swedish data were gathered by the second author in 2007.

The participants in the 2004 study consisted of 40 teachers (one male and 39 females) from the southeastern and northeastern United States and 40 teachers (one male and 39 females) from the midwestern and southeastern parts of Japan. Participants in the 2007 study were 40 Swedish teachers (two males and 38 females) from the Göteborg area in Sweden. The Japanese and American teachers taught children between the ages of 1 and 5 years. The Swedish teachers worked with children between 1 and 6 years of age. The respondent pools in all three countries were selected for convenience of access. Information was collected on teachers’ educational background and

years in the field, but those data were not used to disaggregate our findings for the comparative study.

We mailed participants a questionnaire, asking them to respond anonymously to five inquiries (Izumi Taylor et al., 2004, p. 313):

Tell me, what is play?

Tell me about play in your classroom.

Tell me, how do you think play affects students?

Tell me of your concept of adult play.

Tell me what playfulness is to you.

Emergent Themes

Our analysis of the teachers' responses revealed six themes related to play, which we identified as (1) process of learning, (2) source of possibilities, (3) empowerment, (4) creativity, (5) children's work, and (6) fun activities. The theme play as a process of learning was identified when a response referred to play as a means of obtaining knowledge or skills. Play as a source of possibilities was the theme applied when a teacher's responses had to do with children having possibilities to make choices and changes according to their own wishes and interactions with others. Play as empowerment was the theme when a response was related to giving children the fundamental power to deal with life (Izumi Taylor et al., 2004) and granting them their own volition. Play as creativity was characterized in comments referring to fostering originality or imagination through play. Responses reflected the theme of children's work if they were related to the notion that in their play worlds children construct meaning from their own experiences, feelings, and knowledge in order to understand their environments. Play as fun activities was considered to be the theme of responses relating to pleasure and feelings of joy during play. Finally, two themes regarding adults' play emerged, which we referred to as state of heart (state of mind) and positive feelings. State of heart is defined as "the heart unifying enjoyment, interest, fulfillment, and curiosity," or "lightheartedness, spirit, and mind" (Izumi Taylor et al., 2004, p. 316). A theme of play associated with positive feelings was assigned when a response included reference to feelings of happiness, satisfaction, joy, excitement, enjoyment, fun, or similar emotional states.

Findings from the Surveys

Play as a Process of Learning

Responses from 28 Swedish, 22 American, and 11 Japanese teachers indicated that they perceived play as a process of learning and developing. An American teacher noted, "Play is a means by which children explore and create an understanding about the world around them." A Swedish teacher wrote, "Through play, children create new experiences and learn from each other." A Japanese teacher commented, "Through play, children learn to interact with others, learn to make their play enjoyable, and learn to develop their power to make their lives easy to manage." However, none of the Japanese teachers related play to academic learning; their notions of play were focused on social and emotional development. One comment summed

up this perspective: “Children play together and learn to be friends and to be a member of a group.”

A number of respondents from all three contexts saw play as related to social development and learning. An American teacher referred to opportunities for developing social skills: “Play helps students feel good about themselves. I think it helps self-esteem because with play, they are always successful.” Similarly, many Japanese teachers saw play as relating to social skills. One teacher wrote, “Play gives children the opportunity to learn to interact with others and to develop physical skills so they know how to interact with others in a group. It also develops children’s emotions and nurtures their curiosity, and, in turn, it leads to their knowledge.” Swedish teachers tended to comment in terms of children’s emotional development, referring to the fact that during play children can adapt their play to a level where they feel successful, or to cases when “(play) separates reality from fantasy.”

The notion of play as a process of learning, expressed by a large number of the teachers in our study, corresponds to the widely held view that play is the best mode for children to learn (Elkind, 1986; Izumi-Taylor, 2006; Morrison, 2009; Izumi Taylor et al., 2004). In Sweden, play is considered to be an important process that relates to children’s learning and education (Pramling Samuelsson, 2007). In the United States, according to Copple and Bredekamp (2009), play is a vital part of teaching. Kieff and Casbergue (2000) state that “play is certainly not the only way children learn, but it has been demonstrated repeatedly that it is an effective way of learning” (p. 18). From a Japanese perspective, Muto (2004) notes that “within the child’s play, there is learning” (p. 17), and when children engage in meaningful and authentic play, their intellectual growth can be nurtured. However, in Japan “learning through play” means that children learn their social and emotional skills and that play does not have academic purposes (Izumi-Taylor, 2008; Izumi Taylor, 2004).

Play as a Source of Possibilities

We found that many Swedish and Japanese respondents related play to what we called sources of possibilities, though the Americans did not. A number of Swedish responses reflected the notion that in play nothing is impossible. For example, one Swedish teacher remarked, “In play everything is possible. A chair can be changed into a boat on the open sea.” A Japanese teacher commented, “Play provides children with possibilities to expand their will and opens up everything that play has to offer.” Another Japanese educator extended this concept: “Play has a ripple effect of possibility since, through play, children can exchange their information, listen to different ideas, experience something new, understand themselves better, and find new hobbies and enjoy them.”

Such a notion of play is congruent with that expressed in some professional literature. For example, Perlmutter and Burrell (1995) claim that play is “about possibilities” (p. 21). The Japanese educator Teshi (1999) also observes that play offers children many options to stimulate their inner willingness and energy to engage in activities. Though some Swedish studies have suggested negative potential of some forms of play (Johansson,

1999), there is at the same time a strong belief that play provides children with positive possibilities.

Play as Empowerment

Play as empowerment was mentioned by many of the Japanese participants but not by those from Sweden or the United States. “Empowering children for living” is a priority in Japanese early childhood education (Izumi-Taylor, 2006; Muto, 2004), and play is seen as one mode of developing the power to live (Izumi-Taylor, 2006; Izumi-Taylor, Rogers, & Pramling Samuelsson, 2007). At the governmental level, play is seen as empowering children to be competent citizens. The Japanese government’s early childhood education guidelines (Ministry of Education, Culture, Sports, and Technology, 2000; Muto, 2004) state that early childhood educational settings must provide children with the opportunity to develop their “power to live through play.”

Responses from the Japanese teachers echoed this idea. “The child’s life itself is play, and children find out how to live through the process of playing,” said one teacher. Another commented, “Play is a must and provides us with the power to live through optimism and initiative.” This notion of empowerment was further expressed by a third teacher: “Empowering children can be accomplished through play, and thus children use such powers to cope with everyday life, such as sharing toys with others, conducting themselves as members of the group, and being away from their parents.”

Play as Creativity

Responses of teachers from all three nations referred to the relationship of play to children’s creativity. One American teacher’s comment was straightforward: “Play promotes children’s creativity.” Swedish teachers’ responses referred to both creativity and fantasy, which they valued as being of great importance for children’s well-being and learning. One Swedish teacher said, “An allowing environment which challenges children’s fantasy - the play becomes important.” A Japanese teacher also alluded to creativity: “Play is the process in which children can think for themselves, can create their own ideas, and can fully use their imaginations.” Another response from Japan related playfulness to creativity: “Playfulness provides a way of looking at things from different perspectives rather than thinking of a problem as being something very hard to work out, or it is a way of coming up with different solutions.” Another Japanese teacher’s comment connected creativity to empowerment: “Through play, children learn to interact with others, to develop their independence, to work with others harmoniously, and to use imagination. For these reasons, play empowers children how to live.”

Some literature on play has also linked it to creativity (Barnes, 1998; Lieberman, 1977; Kogan, 1983; Pepler & Ross, 1981; Nakagawa, 1991; Izumi Taylor & Rogers, 2001; Izumi Taylor, Rogers, & Kaiser, 1999; Teshi, 1999). According to Vygotsky (1930/1990), children’s play is an early form of creativity; play is creative when it remakes or reinvents past experiences into new realities rather than simply reproducing reality. Similarly,

Perlmutter and Burrell (1995) note that “Playful people are risk takers whose thinking is open ended and whose minds are creative” (p. 21). The Japanese educators Nakagawa (1991) and Tatsumi (1990) have found that when children have freedom to play with their peers, they tend to be creative. These observations support Vygotsky’s perspective that imagination is the internalization of children’s play, that creativity exists when one’s imagination combines, changes, and creates something new, and that imagination is the basis for any creative activity (Vygotsky, 1930/1990). According to Iverson (1982), the link between play and creativity is based on the ability to view things playfully. In the Swedish study by Johansson and Pramling Samuelsson (2006, 2007), it has been shown that some teachers became preoccupied with getting children to arrive at correct answers and that this preoccupation excluded all kinds of playfulness. By focusing on only correct answers, teachers may discourage playfulness in the classroom and often diminish creativity.

Play as Children’s Work

Significant numbers of American and Swedish teachers perceived play as children’s work, but none of the Japanese teachers considered it in this way. Izumi Taylor et al. (2004) found that American teachers considered play to be children’s work, whereas none of their Japanese counterparts described it in such a manner. Play as children’s work was the most common view of Swedish teachers. Their comments included: “Children’s play is like work for adults,” and “When children play, they work hard.” An American teacher noted, “Their work is their play. Play includes social interactions as well as completing center work.”

The notion that play is children’s work has been discussed in the professional literature; however, some researchers and advocates disagree with this idea (Anderson, 1998; Elkind, 1993, 2003; King, 1982; Holmes, 1999). For example, Elkind (1993) comments, “Play is not the child’s work, and work is hardly child’s play” (p. 29), adding that early childhood teachers should “resist the pressures to transform play into work - into academic instruction” (Elkind, 2003, p. 50). Moreover, kindergartners tend to see their work differently from their play. When children voluntarily select their activities for themselves, they consider it to be play, but when engaging in activities with teachers’ instructions, they consider it as work (King, 1982; Holmes, 1999). Kieff and Casbergue (2000) caution that “play is different for different children” (p. 8), and early childhood classrooms need to balance play and work. Also, Frost, Wortham, and Reifel (2005) note that “children know the difference between play and work” (p. 73).

Play as Fun Activities

Significant numbers of teachers in all three countries agreed that play is related to fun activities; that is, play is a source of enjoyment, joyfulness, happiness, or amusement. One American teacher noted, “Play is participating in activities you find enjoyable and fun.” A Japanese teacher commented, “To play means that we pursue the joy and enjoyment we feel in our hearts.” A Swedish teacher said, “Play is joyful to children since children are free to choose.”

Other research also suggests that play is generally perceived to involve “fun activities”; from children’s perspectives, too, research suggests that play is fun when it is not planned, when it offers a choice, and when it affords the freedom to create, imagine, or construct something (Frost et al., 2005; Garza, Briley, & Reifel, 1985; Teshi, 1999). Likewise, Teshi (1999) observes that Japanese children should enjoy self-initiated play during early childhood years, and the NCSK clearly state that children need to enjoy their kindergarten lives, spending time together with teachers and peers engaged in fun play activities (Ministry of Education, Culture, Sports, Science, and Technology, 2000).

Responses Regarding Play in Classrooms

In response to the question “Tell me about play in your classroom,” 38 Japanese and 30 Swedish teachers indicated that they provided their charges with unstructured play, while American teachers did not report that they offer such play.

Swedish teachers appeared to focus on how they provide children with choices in their play. For example, one teacher in Sweden commented about unstructured play: “It is important for children to make their own choices and decide for themselves with whom they want to play and what they want to play, without any involvement by the teachers.”

When describing play in their classrooms, Japanese teachers mentioned children’s specific play activities. For example, one Japanese teacher commented:

The children in my classroom initiate play. They move around and find what they would like to play. I don’t tell them to play with this or that. Right now, they are interested in hunting bugs, collecting leaves and flowers, gathering nuts, and play with water outside.

All of the Japanese teachers explained what children did while at play in the classroom, while a majority of the American teachers mentioned their classroom play schedules rather than what children did. For example, an American teacher responded, “We have one full hour of play time at the beginning of the day.”

Only American teachers (13) reported that they used centers to offer play activities to children. None of their Japanese and Swedish counterparts mentioned centers.

The responses from Japanese teachers appear to confirm observations of Lee and Zusho (2002) who found that Japanese teachers are familiar with the NCSK set forth by the government and are provided with ample teaching manuals focusing on appropriate play activities. American teachers’ responses on this issue may be related to the fact that in their classrooms, play might be “set aside from work by providing a separate time” (Izumi Taylor et al., 2004, p. 317). In Sweden, children’s play activities in classrooms may have two purposes. One is children’s free play during which they make their own choices and engage their imaginations in role-play; teachers seldom become involved. In the curriculum (Ministry of Education and Sciences, 2006) and in practice, there also is a purposeful tendency toward integrating play and learning as a whole into the pedagogy (Pramling Samuelsson, 2006).

Participants' Comments on Adult Play

Playfulness as a State of the Heart (State of Mind). The relationship between play and one's "state of mind" or "of heart" has been noted in Japan and the United States (Rogers & Izumi Taylor, 1999; Izumi Taylor et al., 2004). When describing playfulness in our study, 23 Japanese and 3 American teachers related it to "their hearts." None of their Swedish counterparts did so. These Japanese and American teachers used such words as "lighthearted," "mind," and "spirit" to explain their concepts of playfulness. One Japanese teacher wrote, "Playfulness means that I find fun in doing something, and my heart finds everything I do to be enjoyable." Another Japanese teacher said, "Playfulness means that my heart enjoys what life offers, and while playing, it is okay to be mischievous." One of the American teachers commented, "Playfulness is pleasurable, refreshes, and renews the human spirit."

Playfulness as Positive Feelings. More American (21) and Swedish (21) teachers described playfulness as being associated with one's positive feelings than did their Japanese counterparts (3). One Swedish teacher said, "To give one's best," in providing an example of positive feelings. Another said, "Humans need to play to feel good." An American teacher also related positive feelings to "laughing, having fun, and living carefree for the moment." Likewise, a Japanese teacher observed, "Playfulness means that you have the heart or the attitude to enjoy and be positive about your surroundings."

Reflections on Findings from Japan, Sweden, and the United States

The notion of play as children's work was mentioned by both American and Swedish teachers in this study but not by their Japanese counterparts. Both American and Japanese teachers described how playfulness promotes one's state of heart or one's state of mind, but none of their Swedish counterparts mentioned this aspect of either adult or childhood playfulness. In general, the Japanese tend to relate the enrichment of hearts to their happy lives (Hoshino, 2002; Itoh, 2002), and it is not surprising to find that they perceive playfulness to be a state of the heart (state of mind) (Izumi Taylor et al., 2004). In a similar view, in the United States, this domain of the heart/mind is described by Levy (1977) who considers playfulness as contributing to the unification of body, mind, and spirit. Relating playfulness to one's heart/mind is not new; Froebel viewed play as important to children's development of spirituality (Brosterman, 1997). To carry this notion of playfulness further, Elkind (1987) remarks that playful attitudes unify the child's mental, physical, and socioemotional development.

Although teachers in all three nations noted that playfulness involves positive feelings, more American and Swedish teachers mentioned this than did their Japanese counterparts. Playfulness as positive feelings is further supported by Rogers and Izumi Taylor (1999) who articulate that playful people can turn difficult tasks into enjoyment with positive feelings. To promote playful contexts for children, Rogers and Izumi Taylor (1999)

recommend that teachers model positive feelings through their playful attitudes; through varying degrees of playfulness, teachers can offer a variety of playful activities that nurture children's positive feelings. It seems likely that, to understand the importance of playfulness in education, adults also need to play in playful environments in which there exists freedom from external rules (Rogers, 2007).

In a global community, interpreting early childhood education in different countries can be accomplished by sharing educators' knowledge of children's play and their perspectives of how to educate children through the use of play (Roopnarine & Metindogan, 2006). Because of differences in contexts for play as well as in the composition of the players, it is helpful for educators to view play from different perspectives in order to "make sound decisions about classroom play" (Frost et al., 2005, p. 58). As global notions of play tend to include "vague general statements to justify the play-oriented curriculum and vague characterizations to describe play in early education" (DeVries, Zan, Hildebrandt, Edmiaston, & Sales, 2002, p. 6), an examination of American, Japanese, and Swedish teachers' perspectives on play can shed light on how the nature of play activities can be mediated by their own cultural influences on their understandings of play.

We believe that our comparison of teacher perspectives in three nations suggests some possible courses of action. First, because Japanese teachers' perceptions of play are very closely related to the NCSK set forth by the Japanese government (Ministry of Education, Culture, Sports, Science, and Technology, 2000), teachers in the United States and Sweden might benefit from working with Japanese teachers to expand their knowledge of ways to implement play-related activities and promote a group orientation in classrooms.

Second, researchers and teachers not only need to understand play and its relation to children's learning but also to scrutinize play as a cultural phenomenon and try to create more knowledge about the general and cultural aspects of play. Our research can also inform teachers of the notion of "the playing learning child" (Pramling-Samuelsson & Asplund-Carlsson, 2008) and challenge them to understand that children cannot separate play and learning in the early years.

Scholars and practitioners in early childhood education have much to learn about play from colleagues in different cultures; such knowledge could be valuable for multicultural communities (Pramling Samuelsson & Fleer, 2008). Comparing one's own with other perspectives on play, as we have attempted to do here, can be helpful in understanding ways to approach play in one's own setting, as well as in communities with diverse populations.

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The Source of Child Care Center Preschool Learning and Program Standards: Implications for Potential Early Learning Challenge Fund Grantees

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Abstract

The proposed federal Early Learning Challenge Fund (ELCF) aims to improve the quality of early care and education programs by promoting the integration of more stringent program and early learning standards than are typically found in child care centers. ELCF grantees also must outline their plans for professional development and technical assistance to support these efforts. With the aim of informing potential ELCF grantees, this article reports the results of a statewide survey of 391 child care center directors focusing on the source of their preschool learning expectations and program standards. The majority of surveyed directors report that the state's child care licensing standards are used. Additional directors report that the state's prekindergarten program standards or early learning standards serve as their current source. However, other responses indicate that the terms "program standards" and "learning standards" themselves may not even be part of the current child care vocabulary. These results suggest that potential ELCF grantees might be better positioned to help child care centers incorporate stricter program and learning standards if they design varying levels of training and technical assistance based on the variety of child care quality "starting points."

Introduction

In September 2009, the U.S. House of Representatives approved legislation supporting the Early Learning Challenge Fund (ELCF) (H.R. 3221). If approved by the Senate, ELCF will award \$8 billion in competitive grants based on states' progress in improving the quality of programs serving young children through such mechanisms as integrating early learning standards and adopting more stringent program standards. Similar to their K-12 counterparts, early learning standards outline what 3- and 4-year-olds should know and be able to do after participating in preschool education programs. Many also are designed to improve the quality of children's early education experiences. Coupled with program criteria for length of day, class size, teacher-child ratio, and curriculum, these two sets of standards aim to ensure that all prekindergartners receive an effective kindergarten readiness experience no matter where they are enrolled (Neuman & Roskos, 2005; Scott-Little, Kagan, & Frelow, 2003a).

Making sure that all programs serving preschoolers can enhance children's kindergarten readiness is critically important. The state-funded

preschool education sector - referred to here as PreK - has experienced tremendous growth over the past decade, with most states using classrooms in public schools, Head Start programs, and child care centers (Barnett, Epstein, Friedman, Boyd, & Hustedt, 2008). Utilizing a “mixed auspice” approach enables states to take advantage of existing resources and facilitate parental choice. Yet, traditionally, these programs have had differing emphases on custodial care vs. early education (Ackerman, Barnett, Hawkinson, Brown, & McGonigle, 2009). Program standards for child care and PreK vary widely, as well, with child care centers generally being governed by less stringent requirements than those for PreK (National Association of Child Care Resource & Referral Agencies [NACCRRA], 2009). Furthermore, no state requires child care centers to follow early learning standards unless the center participates in the state’s PreK initiative and usage of such standards is mandatory (Scott-Little, Lesko, Martella, & Milburn, 2007).

Today, over 1.1 million children - the majority of whom are 4-year-olds - are enrolled in PreK programs in 38 states (Barnett et al., 2008). However, approximately 2.7 million preschoolers are enrolled in child care programs (NACCRRA, 2009). Given the gap between child care and PreK regulations and expectations, as well as the potential to compete for a relatively small number of ELCF quality improvement awards, knowledge about which program and early learning standards currently guide child care centers could inform the work of potential ELCF grantees. This paper reports on a preliminary study focusing on this issue. To begin, we highlight the standards-focused aspect of ELCF. We then provide a brief overview of the current learning and program standards aimed at the majority of PreK programs, as well as the differences in standards for child care centers. We follow with a description of the study and its results. The paper concludes with suggestions for policy makers who aim to promote higher standards in child care centers as part of their ELCF efforts.

ELCF and Standards for Programs Serving Preschoolers

ELCF is part of Title IV of what is known as the Student Aid and Fiscal Responsibility Act of 2009 (H.R. 3221), which primarily focuses on college lending. Recognizing the need for child care and preschool education programs to coordinate efforts, the program will be administered jointly by the U.S. Department of Health and Human Services and the U.S. Department of Education. The current House-approved bill gives states the opportunity to compete for \$8 billion in grants based on their plans to both improve the quality of programs serving children ages birth-5 and increase the number of disadvantaged children being served. States also would be required to work toward implementing an early learning system (PreK Now, 2009).

As part of their ELCF proposals, states must demonstrate how they will build on current licensing requirements to improve the quality of Head Start programs, child care centers, and public and private preschool providers. This effort would include implementing stricter program standards for teacher-child ratios, group sizes, and teacher credentials. In addition, states must explain their plan for integrating early learning standards into the

instructional and programmatic practices of programs serving young children. State stakeholders must outline the professional development and technical assistance that will be provided to programs as they work to improve their quality and implement these new standards, as well (PreK Now, 2009).

Early Learning Standards

While *A Nation at Risk* (National Commission on Excellence in Education, 1983) highlighted over 25 years ago the need for K-12 learning standards, the focus on similar standards for preschool-age children is a more recent development (Barnett et al., 2008). The relatively young history of such standards is related to policy makers' concurrent push in the last decade to increase access to publicly funded PreK programs. Putting such standards into place has been viewed by policy makers as a way to help ensure that individual programs have the capacity to produce the desired level of educational outcomes (Scott-Little, Kagan, & Frelow, 2003b). Without such standards, teachers may rely on inappropriate beliefs about what young children should learn. This issue is particularly salient if teachers have not had specialized, college-level training in early childhood development and education. Even if teachers have participated in formal teacher preparation programs, the lack of clear expectations may result in the sense of being "adrift" in terms of what to teach (File & Powell, 2005).

The link between state PreK programs and the existence of an early learning standards document is not uniform. Twenty-four states providing PreK require all participating programs to follow their respective early learning standards. Twelve states with PreK offer these standards as "guidance" only. In two additional states, some PreK programs must follow the standards, but others are not required to do so (Barnett et al., 2008). The remaining states do not have publicly funded PreK programs but also have or appear to be on track for developing their own early learning standards (National Child Care Information and Technical Assistance Center [NCCIC], 2009).

States' early learning standards are not uniform in terms of their content and depth. Yet they do share common features. For example, each state has early learning standards that are specific to preschoolers rather than being aimed at young children more generally. Most are aligned to the K-12 standards within their respective states. In addition, the majority of state early learning standards focus on five key developmental domains, or content areas (Scott-Little, Kagan, & Frelow, 2003a). These domains were highlighted by the National Education Goals Panel (1995) as part of its kindergarten readiness work. Key early childhood stakeholders promoted an emphasis on the wider array of domains that are essential aspects of early learning and development, as well (e.g., NAEYC & NAECS/SDE, 2002).

The first domain addressed in most states' early learning standards is physical and motor development, which includes children's overall health and fine- and gross-motor abilities. Second is social and emotional development, or children's ability to successfully interact with their peers and with adults. The next domain is approaches toward learning, which focuses on children's initiative and persistence within the learning process.

The fourth area is language development, which includes the oral and written forms of communication that underpin a child's early literacy skills. The final category is cognition and general knowledge and includes early math, science, and social studies learning (Scott-Little, Kagan, & Frelow, 2005, 2006).

Within the domains, some early learning standards documents have indicators to illustrate that a child has successfully acquired a particular skill. For example, in New Jersey's Preschool Teaching and Learning Expectations: Standards of Quality (NJDOE, 2004), a math learning standard states that "children demonstrate an understanding of number and numerical operations" (p. 42). This benchmark is then clarified by nine examples, including "learns to say the counting numbers" and "discriminates numbers from other symbols in the environment" (p. 42). New Jersey's early learning document also provides strategies for how teachers might assist children in reaching the standards. For example, another New Jersey math expectation is that "children [will] develop knowledge of spatial concepts, e.g. shapes and measurement" (p. 44). The state's standards document then advises teachers to provide materials to help children develop their understanding of geometric concepts, such as "items to fill and empty, fit together and take apart, and arrange and shape." They are also advised to "use positional words such as over, under, behind, in front of, and up to" (p. 44). By providing these suggestions, teachers have concrete examples of the types of activities that can help children master these skills.

Program Standards

While the relationship between regulable child care program elements and classroom quality is not straightforward, research generally demonstrates that such structural inputs help set the stage for the type of interactions that support preschoolers' learning (e.g., Vandell & Wolfe, 2000). Most states therefore also have specific PreK program standards to ensure that classroom practices and environments support children's development in the domains highlighted above. These standards often represent an upgrade to the licensing standards that are in place for child care centers. For example, 15 states require all publicly funded PreK teachers to have attained a minimum of a bachelor's degree. Some states require early childhood specific teacher certification, as well. Other states require PreK teachers in public school settings to have a bachelor's degree and in participating child care centers to have an associate's degree or Child Development Associate credential. In contrast, no state requires child care staff to have a college degree, much less specialized training in early childhood (Barnett et al., 2008).

The maximum group sizes and staff-child ratios in PreK also tend to be more stringent than those required by child care program standards. In New Jersey's Abbott PreK program, the maximum class size is 15, with two adults per classroom. In contrast, child care classrooms serving preschoolers can enroll a maximum of 20 children, with one adult staff member being responsible for no more than twelve 4-year-olds or ten 3-year-olds. Many states also require their PreK programs to offer a meal, health screenings,

and support for parents and English language learners. A few states require kindergarten transition activities, home visits, or accreditation by such professional bodies as the National Association for the Education of Young Children (NAEYC) (Barnett et al., 2008). Child care standards typically do not focus on these types of programmatic elements.

In sum, states have established new standards for specific preschool programs as part of their overall efforts to improve children's kindergarten readiness. While the standards are not uniform in terms of content or which preschool programs must follow them, they generally focus on the gains that children should attain in five key developmental areas, as well as what program elements are necessary to support an educationally effective learning environment. The standards aimed at PreK programs tend to be more rigorous than those that apply to child care centers.

If states wish to compete for an ELCF award, they will need to outline plans for provider professional development and technical assistance as a means for incorporating higher quality standards. Given the traditional difference between child care and PreK standards and focus, it would be helpful to know which standards child care center directors currently rely on in their preschool classrooms. This article reports on a large-scale telephone survey of child care directors focusing on this issue. The results of the study follow a description of the methodology used.

Study Methodology

The study reported here was part of a larger research initiative taking place in New Jersey and was designed to assess the capacity of child care centers to participate in an expansion of the state's full-day PreK program for 3- and 4-year-olds living in select school districts. The results are from a telephone survey of 391 child care directors in districts across the state that do not participate in the program but would need to do so if the expansion were to be funded.

The survey focused on directors because they tend to be the administrative leads for the daily operations of child care centers serving children who are not yet in kindergarten (Hewes, 2000). While the experiences that children have in their classrooms largely rest on teacher actions (Howes et al., 2008; LoCasale-Crouch et al., 2007), their classrooms are nested within the norms of child care centers (Bloom, 1991, 1999b). Center directors contribute to program quality and norms by establishing the standards and expectations for teachers and staff (Bloom, 1999a; Morgan, 2000). Child care quality can improve when directors receive administrative training (Bloom & Sheerer, 1992) and possess core administrative competencies (Brown & Manning, 2000). Directors also play a key role in getting their centers "up to speed" when participating in a publicly funded PreK program (Whitebook, Ryan, Kipnis, & Sakai, 2008).

Sample Recruitment

We recruited directors to participate in the survey through a three-step process. First, we used a statewide database of licensed settings to determine which child care centers were located in the districts of interest and served children ages 5 and under. This process gave us a total potential sample of

444. Second, we sent a database of these programs to the New Jersey Association of Child Care Resource and Referral Agencies (NJACCRRRA), who then added the names of each site's respective director. Third, each director received a phone call from their local Child Care Resource and Referral Agency alerting them to the study, as well as a follow-up letter from the first author describing the study's purpose and asking for their participation. The letter included a list entitled "Director Survey Topics," which, as the name suggests, listed the survey topics, as well as the "how many" specifics that would need to be provided (e.g., number of preschoolers served; number of full-time teachers). Fifty-three child care center directors elected not to participate in the telephone survey, which gave us a final sample of 391 directors - an 88% response rate.

Data Collection and Analysis

Data collection occurred through a 6-minute structured telephone interview. The protocol was designed by the first author, colleagues from the National Institute for Early Education Research, and stakeholders from the New Jersey Department of Education and NJACCRRRA. It contained 24 questions, with the majority requiring directors to provide a "yes," "no," or "how many" answer. These questions focused on director and center demographics and characteristics. Three additional questions asked about preschool learning expectations, program standards, and curriculum. We focus here on the learning expectations and program standards questions, as well as the director demographic data and center enrollment statistics. The remaining questions will be detailed in future reports.

After piloting the survey, the interviews were conducted by a professional data collection firm using a computer-aided telephone interview system. All participating directors were mailed a \$10 gift card to a national bookstore chain upon completion.

To analyze the directors' responses, we calculated means and overall percentages for each question. We also performed cross tabulations and chi-squared analyses to determine correlations and statistically significant differences between responses for related questions.

Results

In this section, we report the characteristics of the directors participating in the overall study, as well as their center enrollment demographics. We follow with the responses that we received to the questions about preschool program standards and learning expectations.

Director Demographics

In New Jersey, the minimum qualification to be a child care director in centers serving children ages birth to 5 is dependent on the total licensed capacity of a facility and when the director was hired (State of New Jersey Department of Children and Families, 2009). As a result, directors may have a little as 45 clock hours of administrative training or, conversely, possess a graduate degree.

Given this range, the survey asked directors to report whether they had a college degree, and if so, whether their highest degree was an associate's

(AA), bachelor’s (BA), master’s (MA), or doctorate (PhD or EdD). As can be seen in Table 1a, 18.4% of directors report that they do not have a college degree, and 7.7% say that they have attained an AA. Half of the directors report having a minimum of a BA. An additional 22.5% state they have an MA.

For the group of directors with any college degree, 46.5% report that their major was related to early childhood. However, this result varied by degree, with 79.3% of all directors with an AA having an early childhood focus versus 57.2% and 53.4% of BA and MA holders, respectively.

The survey also asked directors to indicate how many years they had served in this role at their center (see Table 1b). Their average experience is 8.3 years. Just over one-third have three years or less of director experience. An additional 31.8% have between 4 and 9 years of experience working in this capacity. The remaining third have worked as the director in their center for at least 10 years.

Table 1

Table 1a

Directors’ Educational Background (*n* = 391)

Education	%	Years (M)
College Degree Status		
No degree	18.4	
AA	7.7	
BA	49.9	
MA	22.5	
Doctorate	1.5	
AA, BA, or MA related to early childhood (<i>n</i> = 319)	46.5	

Table 1b

Directors’ Years of Experience (*n* = 391)

Years of Experience	%	Years (M)
Years of experience as director in current setting		8.3
0-3	35.5	
4-9	31.8	
10+	32.7	

Number of Children and Staff in Each Age Group

Directors were asked to report on whether they enroll infants/toddlers and/or preschoolers in their center. Of the 391 child care centers

participating in the survey, 82.6% enroll infants and toddlers (N = 323), 97.2% (N = 380) enroll 3- and 4-year-olds, and 78.8% (N = 308) currently serve both age groups.

Directors were queried about how many infants/toddlers and preschoolers who were not yet in kindergarten were enrolled in their center. Overall, directors report enrollment of between 1 and 95 infants/toddlers and 2 to 150 preschoolers. Despite that large range, the majority of centers have much smaller average enrollments, with the mean number of infants/toddlers enrolled being 21.5 and the average number of preschoolers enrolled being 33.4. These center enrollment numbers are typical for the United States in that centers tend to serve a larger number of preschoolers than toddlers (Ackerman & Barnett, 2009).

An additional question asked directors about the number of staff in their infant/toddler and preschool rooms. Centers employ on average 5.6 infant/toddler and 4.6 preschool full-time teachers and assistants. When combined with the enrollment data, these averages suggest that most child care centers meet New Jersey's child care licensing staff-child ratio regulations of 1 to 4 children under the age of 18 months, 1 to 6 toddlers between the ages of 18 and 30 months, and 1 to 10 or 12 preschoolers (State of New Jersey Department of Children and Families, 2009).

Source of Preschool Program Standards

The first purpose of the study was to determine which program standards are currently relied on in centers that enroll 3- and 4-year-olds. Therefore, the survey asked directors: "Are your preschool program standards, such as your group sizes and teacher credentials, based on any specific document or documents?" If directors responded, "Yes," they were then asked: "What are your preschool program standards based on?"

We anticipated a total of 10 possible answers to this second "naming" question. The primary presumed answer was New Jersey's child care licensing standards (State of New Jersey Department of Children and Families, 2009). The second presumed response was New Jersey's Abbott Preschool Program Implementation Guidelines (NJDOE, 2003), which the state's PreK programs (located in both public schools and contracting child care centers) are required to follow. Child care centers that do not participate in the PreK program are not required to implement these more stringent guidelines, but doing so is permissible, as centers would therefore meet and exceed licensing standards. We also anticipated that some directors might cite NAEYC's accreditation standards (NAEYC, 2008). In addition, there were categories for "other," "don't know," and "refused to answer." In all cases, the telephone surveyors were directed not to read the potential answers and instead simply ask directors to name which document or documents they might use.

While our anticipated categories did not include "I don't understand the phrase 'program standards'," anecdotal information from the telephone surveyors, as well as the surveys that the first author monitored on the initial day of data collection, indicated that this category would have been useful. We did not keep track of how many times this occurred, but the telephone surveyors often needed to repeat the question, putting an emphasis on the

phrase “such as group sizes and teachers credentials” to help define “program standards.” It also should be noted that the phrase “program standards” was included in the list of topics sent to all directors prior to the survey.

Eleven directors were not asked this question because they did not serve any 3- and 4-year-olds. Two additional directors asked to skip this question. Of the remaining 378 directors, 52.4% report that their program standards are based on New Jersey’s licensing regulations, 9% cite NAEYC standards, and 8.5% of directors state they use the Abbott Preschool Program Implementation Guidelines (see Table 2).

Table 2

Table 2
Source of Preschool Program Standards (n = 378)

Source	%
Presumed Responses	
NJ licensing regulations	52.4
<i>Abbott Preschool Program Implementation Guidelines</i>	8.5
NAEYC	9.0
Subtotal	69.9
Nonpresumed Responses	
No specific source	14.8
Teacher’s discretion	5.6
Don’t know	3.7
Other	2.9
Curriculum used	2.9
Do not have any program standards	.3
Subtotal	30.2

The remaining directors answered this question in ways that could indicate lack of awareness of the phrase “program standards” or the documents child care centers need to use to be in compliance with current licensing standards. More specifically, 14.8% of directors indicate that their program standards are not based on a specific source. An additional 5.6% cite an individual teacher’s discretion. Just under 4% said that they did not know the source of their program standards. The directors in the final group cite the curriculum used or what we coded as “other.”

We examined whether a director’s college degree is related to reporting one of the “presumed” program standards responses (state licensing

regulations, Abbott PreK guidelines, or NAEYC). As is displayed in Table 3, 73.6% and 74.4% of those having a BA or MA, respectively, cited any of the three presumed answers, in contrast to 60% with an AA and 58% with no degree. These differences are statistically significant ($X^2 = 8.07$, $df = 1$, $p < .005$), such that directors having a BA or higher degree were more likely to cite the state licensing standards, the Abbott guidelines, or NAEYC as their source of preschool program standards. Those with an AA or lower degree were more likely to cite the nonpresumed answers of curriculum used, teacher discretion, or no specific source.

Table 3

Table 3
Relationship between Director Degree and Major and Type of Program Standards Response ($n = 378$)

Type of Response	Director Degree (%)				Degree Major (%)	
	None ($n = 69$)	AA ($n = 30$)	BA ($n = 193$)	MA/PhD ($n = 86$)	EC-related ($n = 178$)	Other ($n = 129$)
Presumed	58.0	60.0	73.6	74.4	77.0	67.4
	58.6*		73.8*			
Nonpresumed	42.0	40.0	26.4	25.6	23.0	32.6
	41.4*		26.2*			

Note: totals may not equal 100 as a result of rounding. * $p = .005$.

In addition, 77% of directors with a major related to early childhood cited a presumed program standards answer (state licensing standards, Abbott guidelines, or NAEYC) versus 67.4% of directors that did not have an early childhood-related major. When comparing these differences using chi-squared analyses, the results indicate a nonsignificant trend within the data ($X^2 = 3.44$, $df = 1$, $p = .06$).

Source of Preschool Learning Expectations

The second purpose of the study was to determine the source of any learning expectations in classrooms serving 3- and 4-year-old children. Therefore, an additional survey question asked directors: “Are your expectations for what preschoolers should learn after participating in your program based on anything specific?” Again, if directors answered, “yes,” they were asked the follow-on question, “What are your preschool learning expectations based on?”

We anticipated nine possible response categories for this question. Because New Jersey does not have a learning standards document specifically aimed at child care centers that do not participate in the state’s

PreK program, there was no “presumed” answer. However, child care centers may voluntarily use New Jersey’s Preschool Teaching and Learning Expectations (NJDOE, 2004) for state-funded PreK classrooms, so this was our first anticipated response category. In addition, implementing a good curriculum can help preschoolers to develop the skills and knowledge benchmarks outlined in early learning standards documents (Frede & Ackerman, 2007). NAEYC also urges programs serving young children to use a high-quality curriculum that addresses the different developmental domains (NAEYC & NAECS/SDE, 2003). Therefore, the second category was the curriculum used. We also included categories for a district or town’s kindergarten readiness guidelines and NAEYC/developmentally appropriate practice (NAEYC, 2009). Our “nonpresumed” answers for this question included a teacher’s choice/discretion, “other,” and “don’t know.” Once again, the telephone surveyors were instructed not to prompt the directors with any of these answers but instead to ask them to name whichever source(s) they use.

Similar to the program standards question, anecdotal information from our data collectors, as well as the calls that the first author monitored during the initial round of data collection, indicated that the phrase “learning expectations” was a source of confusion for some participants. Although the question included the phrase “expectations for what preschoolers should learn after participating in your program” (and thus mirroring the title of New Jersey’s learning standards document), no concrete examples were provided. It is therefore possible that some directors may not have fully understood the meaning of the phrase.

Three-hundred seventy-eight directors answered this question, as well. However, in contrast to the program standards questions, a larger percentage (23.3% vs. 14.8%) say that their learning expectations are not based on anything specific (see Table 4). Almost 24% report that their preschooler’s learning expectations are aligned with the curriculum used, while 22% say any learning expectations are left up to their teachers’ discretion.

Table 4

Table 4
Source of Preschool Learning Expectations (*n* = 378)

Source	(%)
Presumed responses	
Curriculum used	23.8
<i>Preschool Teaching and Learning Expectations</i>	11.6
NAEYC/Developmentally appropriate practice	9.5
District's kindergarten or readiness expectations	8.5
Subtotal	53.4
Nonpresumed Responses	
No specific source	23.3
Teacher's discretion	22.0
Don't know source	1.3
Subtotal	46.6

Just under 12% report that their preschool learning expectations are based on New Jersey's PreK Expectations. Nine and a half percent of directors cite NAEYC/developmentally appropriate practice, and 8.5% report use of their district's kindergarten or readiness expectations.

As can be seen in Table 5, director degree trends positively with the likelihood that a director will give a presumed response (Preschool Teaching and Learning Expectations, NAEYC/developmentally appropriate practice, curriculum used, and a district's kindergarten or readiness expectations) to the learning expectations question. Chi-square analyses show statistically significant differences ($\chi^2 = 14.84$, $df = 1$, $p < .001$) in the relationship between director degree and citing one of the presumed responses, as well.

Table 5

Table 5
Relationship between Director Degree and Major and Type of Learning Expectations Response ($n = 378$)

Type of Response	Director Degree (%)				Degree Major (%)	
	None ($n = 68$)	AA ($n = 30$)	BA ($n = 193$)	MA/PhD ($n = 87$)	EC-related ($n = 178$)	Other ($n = 130$)
Presumed	30.9	50.0	58.0	62.0	58.4	58.5
	36.7*		59.3*			
Nonpresumed	69.1	50.0	42.0	37.9	41.6	41.5
	63.3*		40.7*			

* $p < .001$.

These findings suggest that directors with a BA or higher were more likely to report that their center’s learning expectations for 3- and 4-year-olds are based on the Preschool Teaching and Learning Expectations, the curriculum used, NAEYC or developmentally appropriate practice guidelines, or the district’s kindergarten readiness expectations. Conversely, directors with an AA or lower degree were more likely to report that the expectations were based on teachers’ discretion or no specific source. There is no statistically significant difference in the relationship between directors’ degree majors and the reported basis for their preschool teaching and learning expectations.

Given that 23.3% of directors state that their preschool learning expectations are not based on any source, we examined whether this specific answer varied by director degree and major. Our results show that the higher the degree attained, the less likely that a director stated “no source.” More specifically, 38.2% of nondegreed directors, 30% of directors with an AA, 22.8% with a BA, and 11% of directors with an MA report that they do not have a preschool learning expectations source. However, having a college major related to early childhood does not appear to make it more or less likely for directors to essentially report “no source” for preschool learning expectations. This was the case for 19.1% of directors with an early childhood major and 20.8% of directors who did not have a similar major. The implications for potential ELCF grantees of these results, as well as those related to the program and early learning standards questions more generally, are discussed next.

Discussion

The purpose of this report was to share the results of survey questions asking child care center directors to name the sources of their respective center's preschool program standards and learning expectations. Given the traditional gap in program standards and early learning expectations between child care and state-funded PreK and the opportunity to compete for federal ELCF dollars to improve early learning, such information has the potential to inform the work of ELCF applicants and grantees. Because child care centers will most likely need to implement program and early learning standards that are more stringent than currently required, we offer two implications for future ELCF applicants.

Triaged Training and Assistance

First, our study suggests both good and bad news regarding current level of standards knowledge and practice. On the positive side, 70% of directors cite New Jersey's child care licensing standards, the state's Preschool Program Implementation Guidelines for publicly funded PreK, or NAEYC/developmentally appropriate practice as the source of their program standards. Combined with the child enrollment and number of staff reported, these responses suggest that the majority of directors are already implementing the state's licensing standards. Similarly, 53% of directors could name a source for their preschool learning expectations that "made sense" in terms of being aligned with one of our presumed answers.

Yet the phrase "program standards" itself initially was confusing to many directors. In addition, 30% of directors stated that no source guided their program standards or cited an inappropriate program standards source (e.g., teacher's discretion, curriculum). The phrase "expectations for what preschoolers should learn" was confusing to the directors, as well. Only a small percentage of directors report using the state's PreK learning standards. Furthermore, 23% of directors report that no specific source guides the preschool learning expectations in their respective centers.

These results suggest that despite the general emphasis on standards in the state PreK sector, the extent to which this focus has penetrated the child care field varies greatly. Therefore, if ELCF grantees wish to improve child care center directors' current standards knowledge and practice levels, it may be useful to propose varying levels of training and technical assistance. The majority of directors may need short-term, informal training solely on higher program and learning standards than typically are required for child care centers, followed by technical assistance in implementing such standards. A smaller group may need more intensive, explanatory training on the concept of program standards or learning expectations themselves.

Given the statistically significant differences in responses provided by directors with a BA or higher and those with an AA or lower, it may be beneficial for ELCF efforts to include formal coursework that leads to a BA for directors, as well. Our results admittedly do not demonstrate an overwhelming advantage for an early childhood major as a sole means for improving directors' reliance on higher standards. However, because of the low profit margins in child care (Blau, 2001), this result may have less to do with directors' college major and more to do with their respective centers' current inability to afford implementation of early learning standards and

higher program standards. Our survey did not ask directors why they relied on their current source versus a more stringent source, and thus we urge caution when interpreting our findings as an argument against an early childhood major.

“Starting Point” Research

Outlining exactly what this triaged training, college coursework, and ongoing assistance should look like is beyond the scope of this paper. However, to be relevant to and effective for individual staff across a range of early care and education settings, their training and assistance should reflect their current standards knowledge and practice (Bransford, Brown, & Cocking, 1999). This is especially critical given what is known about the difficulty of applying what has been learned through any training initiative if child care staff do not have an educational background that provides a foundation in child development or early childhood pedagogy (Catapano, 2005).

Thus, the second implication of this study’s results for potential ELCF grantees is the benefit of pre-proposal research of the very programs whose quality will need to be improved. Having a clear picture of the current program standards and learning expectations in use (or not) will help to inform the content of ELCF-supported training and technical assistance, as well as the needed level of intensity. Such research also can map the geographic locations where different levels of support are needed to ensure that the appropriate trainings and technical assistance are easily accessible. In addition, by conducting ongoing research, stakeholders can document the progress made within child care programs, as well as how training and technical assistance should be adjusted to continue to meet staff needs.

Limitations

Although this study suggests the need for varying levels of ELCF-supported training and technical assistance, as well as research to ascertain child care centers’ starting points to inform the development of that support, its limitations should be noted. Our sample of directors was drawn solely from one state with a high-quality, publicly funded PreK program and may not be generalizable to other regions. In addition, no attempt was made to ascertain exactly how much early childhood-specific knowledge each director possessed. We also note that the teachers with “no degree” may actually possess quite a few college credits but not enough credits to graduate.

Furthermore, although directors received prior notice that they would be asked about “program standards” and “expectations for what preschoolers should learn,” initially these phrases were confusing to many directors. Directors’ responses might have been different if the survey asked more straightforward questions such as, “Do you rely on New Jersey’s child care licensing regulations to guide your program standards for such things as class size and teacher credentials?” However, given the tendency for self-report survey participants to misreport in response to sensitive questions (Lavrakas, 2008), rephrasing the question in this way may not have provided useful data. Yet this issue leads to our last limitation: the entire

survey relies on unconfirmed self-report. It is possible that directors' actual sources, knowledge, or the observed practice in their respective centers differ from the answers they provided. We therefore urge caution when interpreting our results.

Conclusion

Despite these limitations, this study suggests that improving a state's early learning initiatives as part of ELCF may require something more than a "one size fits all" plan. At present, child care centers will continue to play a key role in serving the custodial care needs of parents and enhancing children's early education skills. The ELCF presents an opportunity to mitigate the traditional early care vs. education divide by promoting the integration of more stringent program and early learning standards than are typically found in child care centers. Basing a triaged ELCF training and technical assistance plan on rigorous research may help early care and education stakeholders realize that vision, and in turn, better serve this nation's young children.

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Assessment for Preschool Science Learning and Learning Environments

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Abstract

Although interest in preschool science is not new in the United States, this area of learning is enjoying renewed attention among those concerned with prekindergarten education and with improving scientific literacy and achievement among the nation's citizens. Despite the increased interest and funding investment in early science education and the expectation that high-quality educational supports will result in improved school readiness and achievement in science and related domains, research and program evaluation efforts are limited by a lack of appropriate assessments for learning and classroom instructional quality in science. This article reports on a number of promising tools and approaches for evaluating children's learning progress in science and the quality of instructional supports for this learning. The article discusses learning and knowledge assessments, which include supporting and assessing science learning during everyday interactions; performance-based assessments for individualized instruction, progress monitoring, and curricular evaluation; direct assessments of science learning; and assessments of science-relevant skills and dispositions. The article also discusses classroom quality measures related to science learning.

Introduction

Please help us keep ECRP free to readers around the world by making a financial contribution to the journal. Every little bit helps!

Although interest in preschool science is not new (see Riechard, 1973, for a review of programs to that date), this area of learning is enjoying renewed attention in the United States among those concerned with prekindergarten education and with improving scientific literacy and achievement among the nation's citizens. In the early education field, makers of widely used and respected comprehensive preschool curricula such as the Creative Curriculum (http://www.teachingstrategies.com/page/CCPS_Studies.cfm) are strengthening their offerings in science, and subject-specific programs have emerged (Brenneman, Stevenson-Boyd, & Frede, 2009). The National Association for the Education of Young Children (NAEYC, n.d.) holds that children should be provided various opportunities and materials to learn key content and principles of science. The Head Start Child Outcomes Framework includes science among its eight readiness domains (U.S. Department of Health and Human Services, 2003). Most U.S. states have

articulated learning expectations for preschool science, either as a stand-alone area or as part of expectations for general cognition and language (Scott-Little, Lesko, Martella, & Milburn, 2007; Snow & Van Hemel, 2008). The current presidential administration has pledged to make this domain a priority at the prekindergarten level (“Barack Obama and Joe Biden's Plan,” n.d.), and the National Science Foundation's Discovery Research K-12 program has begun to solicit and fund proposals to study science, technology, engineering, and mathematics (STEM) educational programs that support prekindergarten children and those who teach them. Technology and banking industry leaders also support efforts to make STEM accessible to America's preschoolers (e.g., American Honda Foundation, 2010; Motorola Foundation, n.d.). The PNC Foundation (2009) has made a major investment in partnerships between informal science education organizations and preschools through its Grow Up Great with Science! initiative. The Boeing Corporation provides funding support for PBS's Sid the Science Kid (<http://pbskids.org/sid/>), and Northrop Grumman supports Peep and the Big Wide World (<http://www.peepandthebigwideworld.com>), both of which are science-based programs for preschool audiences.

These curricula, policy statements, and funding commitments reflect beliefs that early exposure to STEM concepts will lead to increased comfort with them later in life and that early experiences are critical both for school readiness and as foundations for future learning (see also Beering, 2009). These ideas are attractive given well-established findings of the critical impact of early learning experiences on long-term educational and societal outcomes, especially among underserved populations (Barnett, 2008; Bowman, Donovan, & Burns, 2001; Committee for Economic Development, 2006; Shonkoff & Phillips, 2000), and research that establishes that measures of general classroom quality show moderate relationships to children's learning outcomes [e.g., Burchinal et al., 2008; Melhuish et al., 2008 (EPPE); Haahr, 2005 (PISA)]. Given these findings, it is reasonable to hypothesize that the provision of high-quality science learning experiences early in development will pay off with increased long-term achievement in, and student engagement with, science (National Research Council, 2005). Increasing the number of studies that can speak definitively to these issues is imperative, especially if, as a recent large-scale study in Florida suggests, school readiness in science lags behind other domains, at least among at-risk learners (Greenfield, Jirout, et al., 2009).

Despite the increased interest and investment in early science education and the expectation that high-quality educational supports will result in improved school readiness and achievement in science and related domains, evaluation and research efforts have been severely limited by a lack of appropriate instrumentation. The authors of a recent National Research Council (NRC) report on assessment in early childhood (Snow & Van Hemel, 2008) concluded that science assessments could not be included in their discussion because there "simply was not a basis in theory, research, or practice to include...science, despite [its] obvious importance" (p. 59). The early childhood field does not currently possess the tools needed to answer

questions that bear directly on the methods by which to support and improve science teaching and learning. These tools and methods will reflect particular visions for early childhood science and education more generally. Thus, a starting point for anyone designing or using an assessment instrument is to clarify goals for children's learning with regard to thinking skills and content. Then one can ask, "Are the informal and formal preschool science education programs that we develop effective for meeting those goals? Are some more effective than others? What are the materials and instructional interactions that typify a science-minded classroom? How do we get the most "bang" for our limited educational buck? How do we ensure that each child has appropriate learning opportunities that build on and extend the excitement, enthusiasm, content knowledge, and reasoning skills that he or she brings to the scientific endeavor?"

This final question is, perhaps, of most interest to the adults who spend their days with young children. Developmental research tells us that long before they attend kindergarten, children possess content knowledge that roughly maps onto the scientific disciplines of physics, chemistry, psychology, and biology and that they have begun to reason in ways that form foundations for later scientific thinking (Duschl, Schweingruber, & Shouse, 2007). Young children also approach the world in ways that remind us of scientists. A powerful illustration of this comes from the following mother-child interaction paraphrased from Callanan and Oakes (1992, pp. 221-222):

Child: Why does Daddy, James (big brother), and me have blue eyes and you have green eyes?

Her mother tells her she got her eyes from Daddy, says goodnight, and leaves the room.

The child calls her mother back 5 minutes later and says: I like Pee Wee Herman, and I have blue eyes. Daddy likes Pee Wee Herman, and he has blue eyes. James likes Pee Wee Herman, and he has blue eyes. If you liked Pee Wee Herman you could get blue eyes, too.

The mother tells her daughter it would take more than liking Pee Wee to make her own eyes blue. Then she realizes the child doesn't understand and explains that God gave her green eyes and they can't be changed.

Child: Could you try to like Pee Wee Herman so we could see if your eyes turn blue?

In this short interaction, the child engages multiple inquiry skills including making and describing observations about eye colors and TV preferences, comparing these, questioning the origins of eye color, reflecting on what her mother has told her to explain these differences and deciding (perhaps implicitly) that this explanation does not make sense, generating her own explanation for the source of the differences she has noted, and designing a test to find out whether her causal explanation is correct. While this example may seem extraordinary, those of us who work with children have many similar stories that reveal the capabilities of the young mind, and we feel the responsibility to support, celebrate, and challenge those capabilities. Early childhood as a field awaits strong research evidence that high-quality science learning experiences in preschool lead to long-term

benefits for school achievement, scientific literacy, and professional achievements. Until that evidence is available, it remains incumbent upon us to provide children with a full range of enjoyable learning experiences that take advantage of their natural curiosity, desire to know, and deep interest in scientific topics.

Current State of Preschool Science Assessment

The recent National Research Council report *Early Childhood Assessment: Why, What, and How* (Snow & Van Hemel, 2008) defines assessment as “gathering information in order to make informed instructional decisions” (p. 27). Educators and policy makers who would like to make informed decisions for early science instruction are limited in their efforts because science is not among the domains that are well represented in the catalog of reliable and valid assessments available to educators and researchers (see also Brassard & Boehm, 2007). This seems to be true regardless of the purpose one might have for assessing science learning. That is, whether one is a classroom teacher who wishes to assess individual children's learning and skills to guide individualized instruction for her students, a researcher who speaks with a sample of children to assess the effectiveness of a curriculum or curricular program, or a researcher or administrator who observes a classroom to measure the quality of the environment for science learning, few comprehensive tools exist. In what follows, more detail is given on the state of science assessment and on the work of research teams making progress on these fronts.

The discussion begins by briefly addressing the everyday assessment that occurs in preschool classrooms when teachers observe and interact with children, then moves to descriptions of more structured, performance-based assessments used by educators to measure children's progress in scientific knowledge building (and other readiness domains). A discussion of program evaluation follows, with an emphasis on a new standardized measure that can be used in large-scale studies to assess the science readiness landscape for large groups of learners and to provide information about the strengths and weaknesses of particular programs. Finally, instrumentation to measure the quality of supports for science learning in preschool classrooms is reviewed. Given the links between overall classroom quality and children's readiness outcomes, it is assumed that high-quality classrooms for science learning will similarly be associated with positive learning outcomes in the domain. Of course, whether or not this assumption is correct is an empirical question that cannot be answered in the absence of psychometrically valid tools for assessing both learning outcomes and classroom quality.

Learning and Knowledge Assessments

Supporting and Assessing Science Learning during Everyday Interactions

The preschool teacher is charged, every day, with observing children and communicating with them in ways that support their functioning, learning, and thinking in cognitive, social, physical, and emotional areas of development. The adult observes and interacts with children to gain

information, then responds with activities, discussions, materials, and questions that encourage children to explore and learn more about the world around them. Meeting this challenge requires that teachers understand child development and the expected sequences of learning across multiple domains. For science, specifically, this means that teachers need to be well versed in the kinds of foundational knowledge that preschoolers already have about science topics, the reasoning skills they possess, and the potential limits of those skills. It also means that teachers need some idea of how learning and development progress in order to support children's movement along learning pathways or trajectories for science (Duschl et al., 2007; Gelman, Brenneman, Macdonald, & Román, 2009). In short, it requires not just knowing what to teach but how to teach it based both on general understandings of development and on the needs and interests of individual learners with regard to science. Unfortunately, many preschool educators report having concerns about their own knowledge of science and their ability to support children's learning in this domain (Greenfield, Jirout, et al., 2009). These concerns are not surprising given that early education teacher training programs do not emphasize science, either through classroom or practicum training (see Brenneman et al., 2009, for a review). As a result, the teacher who wants to support children's science learning often must spend extra time preparing to teach it by filling in his or her own knowledge gaps (Worth & Grollman, 2003).

The field of early childhood education could better serve young learners and those who teach them by providing more comprehensive and intensive preservice and inservice professional preparation programs in early science. Studies of teacher attitudes and beliefs about science generally, and about teaching it to young children specifically, will enable us to better meet this challenge in a focused manner, as will studies of preschool educators' knowledge of science and pedagogical content knowledge in this domain. Among the key features of an early science assessment system will be tools that allow greater insight into teachers' knowledge and thought processes so that we can respond with programs that better prepare them to assess and support science learning in the preschool classroom.

One such tool is the Preschool Teachers' Attitudes and Behaviors towards Science (P-TABS), a newly validated measure of preschool educators' attitudes and beliefs about science developed by researchers at the University of Miami. P-TABS can be used to gain a clearer picture of the ideas that teachers have about science and to assess the effects of professional development on these ideas (Maier, Greenfield, & Bulotsky-Shearer, 2011). The Education Development Center has developed and validated a measure of teacher pedagogical content knowledge as part of the Science Teaching and Environment Rating Scale (STERS; described further below). These Science Teacher Performance Tasks have been used to measure positive changes in teachers' science knowledge as a result of participating in an intensive professional development program (Clark-Chiarelli, Gropen, Chalufour, Hoisington, Fuccillo, & Thieu, 2011).

Performance-based Assessments for Individualized Instruction, Progress Monitoring, and Curricular Evaluation

A particular kind of professional support could come in the form of child observation and assessment frameworks and training of teachers to use them in the classroom. Educational Testing Service's (ETS, n.d.) PATHWISE Understanding Early Science Learning provides early educators with an assessment framework and strategies to systematically collect and use children's behavior, language, and work products to guide instruction. The authors of PATHWISE suggest that "a first purpose of assessment in early science education is to help teachers observe, record, and reflect upon children's investigations of the natural world" (p. 1). In this view, assessment is less about identifying children's strengths and weaknesses than about supporting teachers as observers and interpreters of children's knowledge-building processes so that they can better support these processes (Chittenden & Jones, 1999). A similar approach to early science assessment is a key part of the constructivist classroom (Edmiaston, 2002). Under this theoretical orientation, assessment serves dual purposes, to document and interpret children's knowledge and reasoning while simultaneously evaluating how classroom activities and instruction encourage or hinder learning.

Under both approaches described (Chittenden & Jones, 1999; ETS, n.d., Edmiaston, 2002), the evaluation process involves identifying evidence of children's science learning during everyday classroom activities by collecting data over time from multiple sources. These sources include actions, talk, and artifacts that children create individually and in collaborative groups. Individual student portfolios composed of teachers' descriptions of ongoing behavior and conversations as well as children's work products (drawings, concept webs, science journals, sculptures, models, and so on) provide evidence used to assess children's understandings (see also Gelman et al., 2009; Worth & Grollman, 2003). This information is interpreted and applied to inform instruction and support new learning. As teachers practice these assessment procedures, they become more skilled as observers of children's scientific thinking and behavior and are in an increasingly better position to support preschoolers' learning and development in science and other related domains.

The focus on collecting and interpreting anecdotes and documentation of children's science learning can also feed into comprehensive progress-monitoring tools that span critical learning and development domains that include, but are not limited to, science. Assessments such as the Work Sampling System (Dichtelmiller, Jablon, Marsden, & Meisels, 2001), the Child Observation Record (HighScope Educational Research Foundation, 2003), and the Early Learning System (Riley-Ayers, Stevenson-Garcia, Frede, & Brenneman, in press) provide structures for tracking student progress in science learning, and other learning areas, using portfolios to inform teacher report. Teachers who use the Galileo System (Bergan, Burnham, Feld, & Bergan, 2009), in which they judge whether particular readiness skills are learned based on having observed a child demonstrating the skill or knowledge under three different circumstances, similarly would

benefit from gathering evidence of children's science learning as they complete their ratings. Assessments of this type do introduce data collection burdens on teachers. However, such data collection is done with the goal of providing information about individual students as learners of science, math, language, literacy, socioemotional skills, motor skills, and so on, in order to help the teacher better tailor instruction to children who require further support, or challenge, in a particular area. Results from these assessments can be used to provide local information for teachers and schools to assess individual learning profiles at particular time points, to track growth over time, and, when aggregated, to assess whether curricular programmatic goals are being met.

Direct Assessments of Science Learning

Direct assessments of learning for purposes of program evaluation sometimes take advantage of established tasks from the developmental psychology and educational literatures or have been adapted from them. Van Egeren and colleagues (Van Egeren, Watson, & Morris, 2008) developed a child outcomes assessment battery to evaluate the Head Start on Science program. Measures included evidence evaluation, biology knowledge, hypothesis evaluation, and theory of mind tasks drawn from the developmental literature (Sodian, Zaitchik, & Carey, 1991, for evidence evaluation; Hatano & Inagaki, 1994, for biology; and Ruffman, Perner, Olson, & Doherty, 1993, for hypothesis evaluation and theory of mind tasks).

Measures used to assess effects of the Preschool Pathways to Science Program have included tasks similar to those used in developmental work, such as tests of children's understanding of the sources of their knowledge or their knowledge about setting up an informative experimental test (see Gelman et al., 2009).

Evaluation of the Marvelous Explorations through Science and Stories (MESS) program implemented in Head Start classrooms also used a combination of home-grown measures and those drawn from the developmental literature (such as theory of mind tasks) to evaluate program effectiveness in bringing about growth in children's science skills and knowledge of conceptual content, such as animal life cycles and defense mechanisms (S. Ellis, personal communication, August 31, 2010). Language skills were also assessed using the Expressive and Receptive One Word Vocabulary Tests (EOWVT and ROWVT).

Assessments used to measure the benefits of the ScienceStart! Curriculum on children's language development include the well-established Peabody Picture Vocabulary Test III (PPVT; Dunn & Dunn, 1997), which has revealed benefits of the program (French, 2004).

In each of these cases, researchers (rather than classroom teachers) assessed learning as a way to evaluate the effectiveness of curricular programs and interventions for science. Until recently, however, the field has had no comprehensive assessment to directly test children's knowledge of science content and processes in a valid, reliable way. This gap in instrumentation has hindered efforts to research and evaluate preschool science programs and curricula.

A number of years ago, Daryl Greenfield and colleagues began development of such a tool. They began by reviewing state learning expectations for early science and those preschool curricula that included or focused on science, with the goal of creating a blueprint of content and process skills emphasized by the states and by those curricula. An initial item pool that reflected these content and process skills was created. Expert review and pilot testing were used to choose the final item pool and to further ensure the construct validity of the instrument. Results of testing in Head Start classrooms showed that the assessment was sensitive to a range of knowledge and skills, captured growth over the school year in science skills, and showed moderate, positive correlations with vocabulary and learning behaviors scores (Greenfield, Dominguez, et al., 2009).

The team's ongoing work involves the development and use of an 80-item version of the test to use to evaluate the impact of the Early Childhood Hands-On Science (ECHOS) professional development and curriculum program on children's learning in science and other domains. Additionally, the original flipbook version of the science assessment will serve as the basis for the development of a computerized version, Lens on Science. Extensive psychometric evaluation will be completed with the ultimate goal of delivering an assessment that can be used in research and program evaluation nationally (Greenfield, Dominguez, Greenberg, Fuccillo, & Maier, 2011). Such an assessment will allow states, school districts, or other educational entities to know generally where their students are with respect to science learning upon kindergarten entry, which, in turn, can inform educational decision making with regard to programmatic, curricular, or instructional changes to improve learning.

Assessments of Science-Relevant Skills and Dispositions

Other areas of child development certainly influence, and are influenced by, science learning. Thus, one might reasonably look to other important areas of child learning and development for evidence of related skills and knowledge. For example, social skills have an impact on scientific inquiry, because children engaging in such inquiry in school must learn to share and present evidence for their opinions during scientific discussion, to respect others' opinions during discussions, and to cooperate with peers and adults during group experiments or inquiry experiences. In fact, in their review of state learning standards and curricula for preschool, Greenfield and colleagues (Greenfield, Jirout, et al., 2009) identify cooperation as one of eight critical inquiry skills.

Similarly, an individual child's approaches to learning - including initiative, motivation, persistence, and curiosity - should influence the nature of spontaneous explorations. Identified as a critical domain of child learning and development by the National Education Goals Panel (1995), approaches to learning is among the domains of assessment described in detail in the recent NRC volume on assessment in early childhood (Snow & Van Hemel, 2008). While the reader is referred to that volume for a comprehensive discussion of this domain and assessments, one goal of this paper is to describe relevant developments that have not made their way into the larger literature. One such effort is being undertaken by Jamie Jirout and

David Klahr (2010, 2012) who are developing and validating a measure of children's scientific curiosity.

Jirout has developed a game-like measure that manipulates uncertainty or ambiguity within an information-gathering situation as a way to assess individual learners' levels of curiosity. The present computerized version of the game Underwater Exploration! presents situations in which children can re-confirm known information (that is, at a level of no or low uncertainty), explore under conditions of moderate uncertainty (i.e., one of a few fish could appear behind a window), or explore under conditions of high uncertainty (i.e., any fish could appear). The game is adaptive in ways that provide detailed information about an individual child's preferred levels of uncertainty. That is, a child's choices allow the researcher to assess his or her comfort with situations in which correct answers are more or less certain. The behavioral assessment correlates positively with different scales of the Preschool Learning Behavior Scale, including competence motivation, attention/persistence, attitudes toward learning, and the total score of the scale (Jirout & Klahr, 2010, 2012). Jirout's motivation for development of a curiosity measure for preschoolers and kindergartners comes from the fact that "curiosity" is mentioned so often as a dispositional aspect of school readiness, yet the field has neither an accepted definition of curiosity nor a psychometrically validated measure of it. The instrument will allow for assessment of the extent to which educational programs support and increase children's curiosity, which should motivate increased exploratory behaviors by children and lead to greater learning (Jirout & Klahr, 2012).

In sum, measuring individual children's science learning can take a variety of forms, and the choice of forms should be motivated by the purpose for which information is being gathered. Teachers observe, listen, and question in order to assess children's ideas and understandings in the moment, during everyday classroom activities. Performance-based assessment tools, informed by children's ongoing behaviors and work products under unstructured and semi-structured circumstances, provide formative assessment of children's learning and can be used by teachers to design new learning experiences to better support and challenge learners in science and other areas. In addition to progress monitoring for individual learners, information from assessments can be used to assess the degree to which a particular curricular program is related to growth in children's science learning. (Note that the validity of this information, or of comparisons among programs, is warranted only to the extent that teachers using the tools have been trained to adequate levels of reliability and are checked regularly to ensure fidelity to assessment procedures and, thus, the comparability of information across classrooms or programs.)

The University of Miami direct assessment in flipbook form and the forthcoming computerized Lens on Science version are standardized measures appropriate to assess the strengths and weaknesses in programs with regard to the extent to which they prepare young learners for kindergarten.

Classroom Quality Measures Related to Science Learning

If young children's science readiness is to improve so that it no longer shows the flattest growth curves and lowest overall achievement among the Head Start readiness domains (Greenfield, Jirout, et al., 2009), then assessments for learners are important. So, too, are assessments of the environments in which children grow and develop as science learners. To improve outcomes, educators and policy makers need to know what kinds of materials and classroom interactions are linked to better learning. Environmental quality measures can contribute to this endeavor in a variety of ways. A structured observation tool describes the features of a high-quality learning environment and can be used by educators and administrators to evaluate their programs relative to the benchmarks described by the tool or to other programs that have been assessed using the same tool. These evaluations can be used to identify areas in need of improvement and to guide professional development for educators.

Classroom quality measures can be used at multiple time points to monitor efforts to indicate ways that program and environmental quality might be improved. In these cases, the structured observations are completed by an external observer, not the classroom teacher. Another kind of classroom quality measure would involve a self-evaluation for teachers (and perhaps an evaluation by coaches or mentors) to inform and improve their instructional interactions with children (e.g., Frede, Stevenson-Garcia, & Brenneman, 2010). Finally, classroom quality measures could be used for program accountability purposes, if they were psychometrically validated and reliably administered (Snow & Van Hemel, 2008).

Mirroring the situation for child outcome assessment instruments, measures of classroom quality with regard to supports for science are not widely available. A working group that reviewed the available tools for assessing instructional supports for mathematics and science in preschool-grade 3 care settings concluded that the early childhood field's assessment tools are limited in both areas but that science is particularly weak (Brenneman et al., in press). This sentiment is echoed by other authors (Greenfield, Jirout, et al., 2009; Snow & Van Hemel, 2008), with the recent Snow and Van Hemel (2008) report concluding that most existing classroom environment observation measures assess the learning environment at a very general level, and only a few adequately assess practices related to cognition or academic skill domains such as science. The following sections outlines some measures that do exist, in varying states of development.

ECERS-R

An extension of the Early Childhood Environment Rating Scale–Revised (ECERS-R; Harms, Clifford, & Cryer, 2005), the Early Childhood Environment Rating Scale-Extension (ECERS-E) was developed in response to the overall lack of attention to literacy, mathematics, science, and diversity in the ECERS-R (Sylva, Siraj-Blatchford, & Taggart, 2003). The ECERS-E measures classroom science supports more extensively than any other published, widely available classroom observation instrument. Observers are required to evaluate two items that involve the presence of natural materials and the presence of classrooms area(s) dedicated to science

and science resources. Observers also choose to score one item among the three remaining science activity/science processes items (nonliving, living processes and the world around us, and food preparation) after determining which kind of science learning experience is most apparent during the observation. This approach might represent a solution to the issue that observers spend a limited amount of time in a classroom and cannot be expected to observe the full range of science activities; however, important areas of science learning are either not represented in the instrument or remain unevaluated if another area is more apparent during the observation period. The psychometric properties of the ECERS-E include inter-rater reliability correlations above .88, weighted kappa coefficients that range from .83 to .97, and a high degree of concurrent validity with the ECERS-R (.78). The average total ECERS-E score shows significant, positive associations with children's scores for prereading, nonverbal reasoning, and early number concepts. The science scale alone did not show a significant relationship with child outcomes (see Halle & Vick, 2007; Sylva et al., 2003, for reviews).

STERS and PRISM

Two instruments that assess a more comprehensive range of science materials, concepts, and reasoning skills have been developed by teams from the Education Development Center (EDC) (Chalufour, Worth, & Clark-Chiarelli, 2006) and the National Institute for Early Education Research (NIEER) (Stevenson-Garcia, Brenneman, Frede, & Weber, 2010). EDC's measure, the Science Teaching and Environment Rating Scale (STERS), was created in response to the need to measure changes in the quality of classroom science instruction to evaluate the effectiveness of a professional development intervention. The STERS uses classroom observation and a teacher interview to rate the extent to which the teaching staff (1) creates a physical environment for inquiry and learning, (2) facilitates direct experiences to promote conceptual learning, (3) promotes use of scientific inquiry, (4) creates a collaborative climate that promotes exploration and understanding, (5) provides opportunities for extended conversations, (6) builds children's vocabulary, (7) plans in-depth investigations, and (8) assesses children's learning. Each of these components is rated using a 4-point rubric (1 = deficient through 4 = exemplary) that describes the sorts of materials and interactions one would find in a classroom that meets each numerical level. The authors report high internal consistency for the STERS (Cronbach's alpha = .96), and further investigation of the psychometric properties of the instrument are ongoing (Clark-Chiarelli, Gropen, Chalufour, Hoisington, Fuccillo, & Thieu, 2011).

NIEER's Preschool Rating Instrument for Science and Mathematics (PRISM) is a comprehensive, 16-item instrument designed to measure the presence of classroom materials and teaching interactions that support both mathematics and science learning. The science items focus on materials and teaching interactions that support explorations of biological and nonbiological science; encourage reading about, writing about, and representing science; encourage investigations and discussions of scientific concepts; support observing, predicting, comparing, and contrasting; and

encourage recording of scientific information in journals, graphs, and other representational formats. In addition, items on measurement and classification cross the math and science domains. A full validation study and continued exploration of factor structure is planned for the PRISM. Preliminary analyses indicate acceptable internal consistency (Cronbach's $\alpha = .78$) and moderate concurrent validity with the ECERS-R ($R = .41$) (Brenneman, Stevenson-Garcia, Frede, & Jung, 2011).

Directions for Further Research

As described in the introduction to this article, there is currently a great deal of enthusiasm for preschool STEM learning among education policy makers, U.S. federal and state governments, industry leaders, curriculum developers, and researchers. To capitalize on this interest and to translate it into clear educational policy and practice recommendations require strong research-based evidence about the instructional environments and interactions that provide positive learning experiences for young children.

Such evidence should come from tools that must be both based on research and empirically tested to ensure that they are valid, reliable, and linked to children's learning outcomes. Based on the inquiries that colleagues and I receive about the existence (or lack thereof) of such evaluation tools, it is clear that there is a very real demand in the field. Instruments that measure classroom supports for science learning in a comprehensive way will be of use as objective measures that can be used to compare classrooms, curricula, and programs using a common ruler, allowing us to evaluate these in a rigorous way and to answer the questions first posed in the introduction: Are the informal and formal preschool science education programs that we develop effective for meeting our goals for children's learning? Are some more effective than others? What are the materials and instructional interactions that typify a science-minded classroom? How do we get the most "bang" for our limited educational buck? How do we ensure that each child has appropriate learning opportunities that build on, and extend, the excitement, enthusiasm, content knowledge, and reasoning skills that he or she brings to the scientific endeavor?

Conclusion

Assessment in preschool justifiably concerns many people; they worry about the negative effects of certain kinds of assessments on young children. They fear that students experience feelings of inadequacy, confusion, pressure, or boredom if they are tested. The assessments described here include some that take advantage of the work products, conversation, and activities that are naturally part of children's experiences during the course of a typical preschool day. Other assessments may require that children take time out of their day, but these are often designed to be game-like and interesting for children. Assessment of young children also raises concerns if data from preschoolers, whose performances are more variable than those of older learners and who do not know the "importance" of performing well, are used to inform high stakes decisions about program and school effectiveness. As with assessment more generally, it is critical that the

instruments be used for the purposes for which they were designed. Reviews of these issues can be found in recent review volumes (Brassard & Boehm, 2007; Snow & Van Hemel, 2008).

While this article in no way dismisses these important concerns, assessment is not optional for preschool science education. The question is not if we will assess science learning but how we can do so in ways that are appropriate for the questions being asked by teachers, administrators, researchers, and policy makers; that are viewed as useful by those who work in classrooms, administration, research, and policy; and that fit as seamlessly as possible into the lives of the learners being assessed.

The field currently lacks adequate instrumentation in early science, but progress is being made, both in the assessments available and in the ways that early childhood professionals can support young science learners. Much of this work, however, resides outside of the published literature; thus, one goal of this article is to start a conversation about the current state of early science assessment instruments, with the expectation that others will add to the inventory begun here. Together, those of us who study science learning and those who teach young science learners can generate a blueprint for the assessment toolkit that must be developed if we are to fully support the preschoolers of today as they learn and grow into the students, citizens, and STEM professionals of tomorrow.

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Dynamic Aims: The Use of Long-Term Projects in Early Childhood Classrooms in Light of Dewey's Educational Philosophy

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Abstract

This paper explores the use of the long-term project as an educational tool in early childhood classrooms. In particular, it focuses on the way in which long-term projects can reflect John Dewey's notion of the "dynamic aim" as a primary force in education. In *Democracy and Education*, Dewey suggests that when teaching is dominated by specific goals, the educational process becomes static, and there is an unnatural separation between the activity the student engages in to reach the goal and the goal itself. Thus, the activity has no educational purpose beyond reaching this goal and does not teach the student how to learn beyond this very specific situation. Dewey suggests instead that education be based on a series of dynamic aims. The aims of the activity emerge from the activity itself, and they serve only as temporary beacons for the activity. As soon as an aim is achieved, that achievement creates activity leading to another aim. This paper suggests that long-term projects can be perfect vehicles for this type of approach to education. In particular, the paper focuses on the Reggio Emilia approach to long-term projects, which includes some important attributes such as documentation and *progettazione* (i.e., a discussion of the possible directions that the project might take based on observations of the children and past experience). The paper concludes with examples of long-term projects partially based on the Reggio Emilia approach from two American classrooms - one infant/toddler and one preschool.

Introduction

An important question for early childhood educators is how they view their activity in the classroom: Are teachers of young children attempting to reach specific goals with those children, to bring them to some specific destination? Examples of this view of teacher activity can be found in the school readiness debate as well as in many thematic curricula. Or are teachers simply setting a context in which children seek their own purposeful direction, instilling in children an attitude of discipline toward activity that will be of use to the child in future important activities? This attitude of discipline engenders internal motivation on the part of an individual engaged in an activity to continue in that activity even when interest or attainment of a proximal worthwhile outcome is not immediately apparent. The only social/ecological force propelling the actor forward in

the activity is foreseeable (but distant and perhaps even cloudy) worthwhile outcomes.

The above questions reflect some central points made by John Dewey (1916) concerning creating the best possible educational experience for children and the society in which they live. Dewey argued that education must be experience based, centering on ideals such as open-mindedness and discipline in aim-based activity. These ideals find a comfortable home in educational models that stress continuous practical activity over direct goal-based instruction. Dewey contends that we must teach children how to engage with the world on a practical level and trust them to construct their own knowledge through (successful) engagement in activities of a lifetime. An obvious vehicle for some of the issues that Dewey outlined in his philosophy, such as the combining of experience and thinking, interest and discipline, and the flexibility of aims, is the long-term project. In fact, teachers in the Progressive Movement that Dewey's philosophy spawned recognized the potential of using long-term projects to address Dewey's philosophy and established long-term projects as an important part of the curriculum (Katz & Chard, 1989). It is, however, not simply the choice of the long-term project as an educational strategy that is important; there are a number of dangers and difficulties inherent in the use of the long-term project that could move it far from Dewey's philosophy. The method in this case is as important as the strategy. One of the purposes of this paper is to put Dewey's philosophy into the context of a method for long-term projects (and education in general) developed by Reggio Emilia educators.

This paper is presented in three parts. First, we offer a brief outline of some of the Deweyan values that we think can be captured through the use of long-term projects as part of the curriculum. This section will be followed by a discussion of the teaching methodology developed by Reggio Emilia educators that we believe brings these ideals into the real-world classroom. Third, we will present synopses of two long-term projects - one in an infant/toddler classroom and one in a preschool classroom - that were brought to fruition through a combination of the methods developed by Reggio Emilia and strategies developed within the local classroom. Throughout the paper, we attempt to maintain the unity of method and context so important to Dewey and to successful curriculum in any classroom. When method is separated from content, it is only for purposes of observation. Methods only have meaning in the context in which they are employed.

Dewey and Activity

Dewey (1916) saw education as continuous process rather than as goal-directed activity. The emphasis on process, and the trust Dewey placed in the child as part of that process, fits easily with classrooms that employ long-term projects as a natural part of their curriculum. This emphasis suggests (or perhaps demands) the stressing of practical activity in the educational context. Part of the reason for practical activity is that process-based education is more concerned with fluidity, and interest inherent in the activity, than with any particular goal or content of the activity. The role of

interest and fluidity in practical activity is captured in Dewey's conception of aims.

Aims and Flexibility in the Long-Term Project

Dewey believed that teachers must establish aims for children or, more appropriately, let children establish aims for themselves. But aims must not fall into the trap of becoming inflexible destinations. Destination, as Dewey (1916) defines it, creates two difficulties for an educative experience. First, any destination that is set up for an activity is separate from that activity. The activity actually devolves into two distinct parts: (1) the object that stands as some glowing end point outside of the child and (2) the activity that the child will use to reach this end point. A prime example is the use of flash cards for educational purposes. The goal of the teacher is to have children learn the alphabet. Each day the teacher holds up a flash card with a letter on one side and the picture of an object beginning with the letter sound on the other side. The teacher has the children identify the object and then identify the letter by sound. By the end of the year, the children have reached the goal of knowing the alphabet.

Although a "dualism" between activity and end point is detrimental at any point in a child's educational career (Dewey, 1916), we feel it is particularly disastrous in early childhood education. Children engaged in this type of "dualistic" educational activity may become less interested in the enjoyment of the activity itself and more interested in things obtained or achieved once the activity is complete. This approach might work in a rough manner as long as the educational institution is continuously able to set up objects of children's desire as the end point of activities. But as Dewey suggests, in a complex society, educational institutions cannot always do so.

The approach young children take in activity has far more importance than any particular content. Educators must make sure they provide an educational context in which children engage in activity for what it brings them at the moment; however, educators should not promote capricious activities that have no meaning beyond enjoying the moment. For activity to have meaning, there must be a temporal sequence leading to an aim. The meaning of the activity emanates both from what the child recognizes as leading up to the moment of the activity and what the child sees as developing through engagement in the activity.

The idea of a destination connotes an end or a stopping point. Dewey believed that inasmuch as activity in life did not have ends or stopping points, activity in education should not either. Any aim, once accomplished, immediately becomes a starting point for a subsequent activity. This characteristic of aims is another reason Dewey preferred the concept of aims to the concept of destinations. Children need to recognize that they are engaging in activity that will take them down the road a little bit further. Such an attitude on the part of teacher and child offers two important features to the educative process. First, such an approach enables the child to understand that the true purpose of an aim is identifying another aim-based activity. There is a temporal relationship between aims, with activity as the proactive force that binds them together. The term destinations suggests that once the child has finished the activity, it is over. Second, an

aim-based approach establishes education as a lifelong activity rather than a time-delineated activity.

The teacher and child must work together to develop substantive aims in the educative process. The aims must be inherent to the educative activity itself, and they must be flexible. That said, it was also important to Dewey that aims be both definite and relatively complex. The development of aims is where the role of the teacher as both mentor and cooperative partner with the child becomes important. The teacher recognizes and suggests viable aims for children's activities, but the aims emanate from the activity itself and not from the teacher's belief system about where the activity should take the child. The teacher must maintain maximum flexibility, while not being so elastic as to allow the activity to eventually become capricious. In other words, the teacher must enter into something akin to Vygotsky's (1978, 1987) zone of proximal development. The teacher recognizes possible aims for child-driven activity and sets them as proximate goals. But these goals are dynamic; as the child's activity changes, the teacher must be willing to let the goals change so that they optimally suit the activity of the moment.

Interest and Discipline

Coexisting with the idea of aims are interest and discipline. The common understanding of the zone of proximal development is that a social interlocutor sets an aim for the developing child that helps pull the child forward in his or her thinking (Vygotsky, 1978). The general relationship between mentor and neophyte is between the neophyte's everyday activities and the mentor's introduction of social/scientific concepts. The zone of proximal development is where these two meet in the thinking of the child (Vygotsky, 1987). The question that Dewey poses in any such relationship is twofold: (1) What is going to cause the child to engage in activity that will achieve this aim? (2) What is going to cause the child to persevere in this activity until the aim is achieved? These questions are not trivial - the whole concept behind the zone of proximal development is that the mentor is attempting to get the child to do something that he or she is not immediately capable of doing and that may be an extension of his or her way of thinking. Dewey's answers to the engagement and perseverance questions are interest and discipline.

For young children, interest is the easier of the two to deal with because young children tend to be naturally open-minded and curious. A first inclination of teachers often is to make activities more attractive through active teaching methods. A teacher attempts to make a target activity more interesting to students by offering them a goal, or an activity, of interest that is separate from that target activity. This goal or activity of interest serves as a proximal reward for engaging in the target activity or meeting the aim of the target activity. But, as mentioned earlier, offering a goal creates a "dualism" between the target activity and the aim of the activity (for example, attempting to teach the alphabet by turning the use of letters into a board game). Dewey labels this approach the "soup kitchen theory of education" (Dewey, 1916, p. 126). This solution is both short term (what happens to the child's interest in letters after the board game runs its course?) and more representative of the teacher's desire for the child to learn

the alphabet than of the child's desire to learn the alphabet. Dewey argues that the material itself must be interesting. Interesting materials will draw out of the child the desire to both forecast results from activity and engage in the activity so that these results can be attained.

The partner of interest is discipline. Discipline is the ability to maintain energy in and focus on an activity in order to reach the aim. Discipline is the principle that allows the individual to overcome barriers and obstacles and see an activity through. An opaque aim, where an individual is not immediately aware of the purpose of an activity, must be considered a major obstacle. For instance, it is relatively easy to maintain an adolescent's interest in learning the mechanics of driving; the aims of learning the mechanics of driving are clearly visible (e.g., freedom of movement). It is far more difficult to create a situation where an adolescent maintains an interest in algebra; the aims of the activity are complex and difficult to recognize (e.g., a better understanding of the physical universe). The more distant the worthwhile outcome, the more opaque the activity, the more the need for an attitude of discipline. Discipline, in Dewey's frame of reference, is the ability to think about and reflect on actions, to think about where these actions might lead, and then to follow through on these actions in the face of obstacles, confusion, and difficulties.

How do teachers develop disciplined activity while at the same time maintaining interest in that activity? Central to this type of development is the natural curiosity and open-mindedness of young children. It is easier to use these qualities if activities remain transparent and children are reminded of aims through mentor support. The best teachers recognize that the desires of young children are transient, and these teachers therefore keep their aims flexible. It is a dance, in many ways, between teacher and child, involving interest and discipline from both.

Education is generally a more utilitarian endeavor with young children. There is less of an emphasis on learning of specific, abstract, disciplinary subjects, and more of an emphasis on everyday education (Dewey, 1916). The combination of easily stimulated (though transient) interest/desire and an emphasis on practical activity enables teachers to locate and use specific purposes of everyday activity as part of their curriculum. The teacher is able to organize educational activity so that children are not only doing something, but they are engaged in activity based on desire that "requires observation, the acquisition of knowledge, and the use of constructive imagination" (Dewey, 1916, p. 135). As Dewey (1916) notes:

Given a consecutive activity embodying the student's own interest, where a definite result is to be obtained, and where neither routine habit nor the following of dictated directions nor capricious improvising will suffice, and there the rise of conscious purpose, conscious desire, and deliberate reflection are inevitable. (p. 350)

Experience and Thinking

It is incumbent on the teacher to constantly differentiate between mere activity and what Dewey terms experience. This differentiation is especially difficult because where teachers normally see inherent interest is in play, but the way teachers usually define and perceive play limits the activity as

experience. Experience is the natural synthesis of mind and body. Individuals are physically active, and through this activity, they encounter some type of consequence. Vital experience must have some cumulative growth; it should involve experiments with the world that lead to the "discovery of the connection of things." Often, play is not seen this way by adults, especially when compared with more formal, planned lessons. Play is captivating, but it is also transient and "in the moment." Teachers often treat play experiences as separate from formal education or possibly use the materials as a means for introducing interest into what they consider formal education (e.g., deciding beforehand to use cars and ramps to teach children about gravity or relationships between mass and speed). This approach is representative of the aforementioned "soup kitchen" theory of education.

The teacher then has an enormous task in interacting with child-initiated activity so that it serves as vital experience for the child. The child must see experience as interconnected with past and future activities. Activity originates with the child, but it is guided by the teacher so that it is continuous and involves multiple, sequenced purposes. Education about issues such as the relationship between mass and speed naturally emerges through the activity itself. The child, in these circumstances, is not a scientist but an explorer, an active creator of knowledge rather than a passive recipient of knowledge.

Disciplined thinking emerges out of this continuous, interesting activity. The suspense, the doubt of what will occur next in personal exploration (e.g., will certain means achieve an end or will they not?), causes the child to approach the problem both "emotionally and imaginatively." The suspense of the activity drives the child forward. The uncertainty of the experience, combined with the child's desire to achieve a certain aim, cause the child to think about how the situation is unfolding. This type of demanding activity falls within Dewey's definition of play.

Both educational researchers and teachers need to keep learning over and over again that work and (true) play are two sides of the same coin. Work has direction and purpose, and play has direction and purpose. But in play the interest is more direct and individuals engage in the activity of play for its own ends, while in work individuals engage in activity for ulterior motives that are separate from the activity at hand. In other words, the aims of play are always transparent and tied to the activity. You play a baseball game for a purpose such as having more runs than the other team upon its completion. You put together Lego pieces for a purpose such as having a completed structure of a spaceship. There is no purpose separate from the activity, no other motive for engaging in the activity. If there were, the activity would be work. Compare the activities of a builder putting together the pieces of a real bridge and a child putting together the pieces of a Lego bridge. As pure physical activity, the child's activity is a microcosm of the builder's activity, but the child's purpose and motivation are inherent in the activity itself. The consequences of the physical activity might be building a structure, the development of a peer relationship, and the development of an adult relationship. What is important is that the relationship between physical activity and consequences in play is apparent and can easily be

judged. The builder may have ulterior motives for the activity, such as a paycheck to buy groceries.

Recognition of the proximity of play and work as activities helps teachers recognize the relationship between what they do in an everyday context and what the children in their classrooms do. There is often a dualism set up in the classroom between the teacher's activity and the child's activity that can be just as difficult as the dualism between mind and activity. The teacher is not shaping classroom activity but is engaged with the child in the same activity. The only difference is that while the child "plays" to reach the foreseeable aim, the teacher works to create a context for the child where he or she is able to use open-mindedness, natural curiosity, and concentration on purpose to achieve knowledge and discipline.

Deweyan Ideals Expressed in Classroom Activity

Dewey's philosophy sets aims for the educational experience that are often difficult to achieve. The child creates the activity and develops aims out of his or her own creation, but the teacher must maintain some control of the aims. The child's interest in the activity is paramount, and at the same time, the teacher must help the child develop discipline through the activity. To explain the difficulties, we return to Vygotsky's model of the zone of proximal development. There is the neophyte (child), and there is the mentor (adult). The aim of the adult still is to bring the child's understanding of her social and physical world forward through social interaction. But instead of the mentor introducing some determinant activity with a preconceived aim, he or she must wait for the child to engage in an activity of his or her own choosing. The mentor can present the child with different contexts, but the interest must come from the child. Once the child has chosen an activity, the teacher must determine whether it is capricious or has a purpose. The teacher makes this determination by recognizing potential interconnections that a given activity can have with other activities in the child's life. Once again, the purpose cannot come from the needs of the teacher but must come from the desires of the child. The development of purpose in educational activity will almost always involve some type of practical activity with an easily recognizable aim. The teacher must recognize the aim of the child's activity along with the child and maintain it as a goal of the activity, in spite of any obstacles that might arise. The teacher must also help the child to recognize that this aim is also a beginning for further activity; therefore, the teacher must engage in the same type of forecasting that the teacher is attempting to instill in the child. The teacher must recognize and accept any number of directions the activity may take and be flexible enough to appreciate and welcome a direction that did not occur to him or her. Throughout this process, the teacher must trust that the activity itself is bringing the child forward through its own momentum - not in the sense of a leading activity (Leontiev, 1981), but as a space, a context for the development of creativity and discipline.

Long-Term Projects in Reggio Emilia

One place where it is possible to see many of Dewey's more abstract concepts in concrete action is in the pre-primary schools of Reggio Emilia, Italy. In particular, the Reggio Emilia approach to long-term projects and the ways in which documentation is used to support teachers and children engaged in these projects are very much in sympathy with the type of educational experience that Dewey was looking to establish in schools. The Project Approach, of course, is not unique to Reggio Emilia. It has been used in other educational forums and is well documented by Katz and Chard (1989). The Reggio Emilia approach, however, includes some important innovations such as *progettazione* (i.e., a discussion of the possible directions that the project might take based on observations of the children and past experience) and documentation that we believe allow it to come close to some of the ideals set forth by Dewey, as outlined above.

The long-term projects are initially established through the interests of the children. To choose a project topic, the teachers can provide activities of possible interest to the classroom and recognize when the children show a natural interest in the topic, or they can maintain an awareness of activities and things children develop an interest in on their own. An example of the former is offered by Rinaldi (1998), while an example of the latter is offered by Rankin (1998). In the Rinaldi example, the teachers asked children to bring back memories of their summer vacations. The teachers expected to hear stories about waves and sunsets and other vacation topics that an adult might normally discuss and find of interest. Instead, a child spurred the interest of the class by talking about "a crowd of legs, arms, and heads." The teachers recognized the word "crowd" as being of interest to the children and pursued the idea. It can be assumed that if the concept had not stirred interest, the teachers would have dropped it. The teachers set up the context for the children to express interest but were open to whatever and however the children did actually express interest. Discussion of family vacations was a possible aim of the activity, but it was not the only one.

In the Rankin example, the teachers took notice of dinosaur toys that young children would often bring to school and how spontaneous play often occurred around these toys. The interest in the dinosaurs became a good jumping off point for an educational activity. In other words, the activity of the children was recognized as something more than capricious activity. The experience was not simply a physical activity followed by a consequence without any judgment of the relationship between activity and consequence. The interest naturally fostered attempts at interconnectedness through secondary experience. The interest gave the activity educational potential. In the Rinaldi example, teachers accepted a direction that created interest for the children, even though the direction was not what they expected. In the Rankin example, the adults saw that they could use interest in an activity to help develop a vital educational experience that could involve discipline. In both examples, the interest of the child was the key to developing vital educational experiences that would eventually lead to an attitude of discipline, and the adults looked for interest from the children. Malaguzzi, the founder and one of the driving forces behind the Reggio Emilia programs, describes one of the essential elements of any project as

producing or triggering "an initial motivation, to warm up the children" (Malaguzzi, 1998, p. 90). It is critical that the motivation is seen as coming from the activity in order for the activity to develop into a project.

Children's interest in a particular idea that emanates from their own activity, and the ability to see this activity as moving toward a foreseeable aim, is only the first step - both for a Deweyan model and for the Reggio Emilia model. (The teacher illuminates potential aims, but it is the child who recognizes the activity's actual aim.) The critical question becomes "how do you ensure that a foreseeable aim emerges and is maintained while at the same time making sure that any such aim comes directly from the children who are showing interest in the activity?" The Reggio Emilia model uses the technique of *progettazione* (Rinaldi, 1998); that is, before they actually embark on the project, as well as during the project, the adults involved come together and discuss various possibilities or directions that the project might take based on observations of the children and past experience. In other words, they discuss the different types of foreseeable aims that the children might develop out of their activity. Two things occur simultaneously as a result of this type of discussion. First, adults come to understand that there are many different types of aims possible in the activity. This understanding gives the children the freedom to create their own aims in an open and free atmosphere (Rankin, 1998). From a Deweyan perspective, this understanding does something else at least as important - it develops a context where there will be an aim, where there will be the development of an attitude of discipline, so that the individual can engage in activities with more long-term aims. The activity belongs to the child, but the adults make sure that aims recognized by the children through activity are maintained. The maintenance of an aim for the activity can take the shape of provocative questions or activities that allow children to express their thinking at those moments (e.g., writing or drawing about the issue).

The maintenance of the aim still does not make the project a true educational experience in the Deweyan sense. There needs to be a way for the children to understand that aims are in temporal sequence and that accomplishing one aim leads to another activity that naturally (but not necessarily) follows it. In many ways, this ideal might be the most difficult of Dewey's ideals to achieve. Yet a sense of discipline and an understanding of how the mind works in activity are difficult to achieve without a natural momentum in activity. Reggio Emilia educators seem to have developed at least a partial method for dealing with this challenge in their idea of documentation. Documentation involves careful representation of the course of the project through photographs and other observations of the children as they engage in purposeful activity, as well as examples of the children's work. Documentation may be the most unique, and possibly the most important, aspect of the Reggio Emilia approach (Katz, 1998).

In the crowd project described by Rinaldi, the children of the class became interested in drawing people in a crowd in different ways, and an aim of the activity became the ability to draw in profile. The teachers put one girl in the middle of a group and had other children draw her from all sides. The children were able to understand that the girl could be viewed

from four sides. The adults then took the children outside of the school where they were able to observe and photograph people coming and going. The children simultaneously engaged in the activities of observing a crowd and being part of a crowd. The children were then shown the slides a few days later and were able to enjoy "those images, moving through their reflections" (Rinaldi, 1998, p. 125). A child drew a multi-person picture in profile, and the aim became an activity with the aim of creating a collage of a crowd. In the dinosaur project described by Rankin, teachers used transcribed text of conversations about dinosaurs to remind the children about what they thought about the size of dinosaurs. The aim of the children's activity had been to create a structure that resembled a dinosaur in shape. The adults, through documentation, were able to have the children take that aim and use it as a springboard for activity with the aim of creating a structure that resembled a dinosaur in size.

Documentation in many ways exists as a living diary of a project. One of the most important aspects of documentation is that it is shared with the children engaged in the project over the course of the activity. This sharing is done to stimulate interest and reinvest the activity with motivational force. The children "become even more curious, interested, and confident as they contemplate the meaning of what they have achieved" (Malaguzzi, 1998, p. 70). One of the major aims of the educative experience, in Dewey's view, is to teach younger children discipline through their natural interest and curiosity in things. What documenting activity and sharing it with the children does is use the discipline they developed through engaging in the activity to reactivate their interest. The children involved in the project are offered a representation of how their purposefulness achieved aims and how those aims in turn became activities. An important activity cycle begins to emerge: interest leads to discipline, the discipline allows the development of interest. This cycle means that at the core of learning/development, especially for young children, is the need to maintain interaction between these two complementary aspects of activity (discipline and interest). The activity must be interesting enough that children voluntarily wish to engage in it as vital experience. The aim of the activity itself must be worthwhile enough that upon reaching it, children are willing to overcome obstacles (including momentary loss of interest) in order to achieve a subsequent, interconnected aim (i.e., discipline). Interest must always lead to aims that highlight the value of discipline. Aims achieved through discipline must, in turn, reinvigorate interest. The teacher should try to maintain this cycle as long as possible (so that the learning experience becomes a microcosm of life experience). The teachers use documentation in much the same way during their meetings. The maintenance of interest through documentation is of major importance for Dewey, for as we grow older, much of our open-mindedness and natural curiosity fades, and all we are left with is our discipline in seeing a project through in order to create interest.

Methodology in Activity: Two Examples of Long-Term Projects

In order to better portray some of the ways long-term projects can be used as part of an early childhood education curriculum, we present two examples with two different age groups. The first project we present is based on preschoolers' interest in shadows. The second project involves infant/toddlers' interest in construction. The classrooms we discuss in this section are different from those in Reggio Emilia in some fundamental ways. First, these classrooms are in the central United States rather than northern Italy. The teachers and the children bring very different everyday concepts to activity from those that might be found in the Reggio Emilia ecology. Although we believe that these classrooms and the Reggio Emilia classrooms were working within very similar versions of what Vygotsky (1987) termed "scientific concepts" of education and the long-term project, these scientific concepts interacted with different everyday concepts. The differences may have been even greater because these classrooms were part of a university laboratory school. Both Reggio Emilia teachers and the teachers described here believe it is important to take the children out into a larger "natural laboratory," but Reggio Emilia teachers use the city as a laboratory, while the teachers in the school described here use the sprawling campus of the university.

Second, the classrooms discussed here were mixed-age classrooms rather than single-age classrooms. Mixed-age classrooms present certain difficulties and certain advantages in project development that may be apparent in our descriptions. Third, the infant/toddler example involves age groups much younger than are usually found in discussions of long-term projects. We feel that involving even very young children in project work is highly representative of Deweyan philosophy in that it shows the seamless thread of lifetime education. Long-term projects are meaningful for the youngest and the oldest possible students because the projects emphasize the process of education rather than the content.

The descriptions of the projects that follow were derived from a variety of sources. Teachers in both classrooms regularly kept informal journals and notes about activities that occurred in their classroom. These notes were used to reconstruct the descriptions of each of the projects. In addition, small tape recorders were used to record conversations between children during the course of their activity. These tapes were then transcribed and were used as a data source.

Documentation panels composed of the text from teacher notes, conversations between children (or a combination of both), and photographs of the children's activities were also utilized for these descriptions. In the infant/toddler classroom, the documentation for the construction project took the form of several "big books" that teachers, children, and parents could revisit in the same way they would read through any book. These books also included transcripts of conversations between parents and children in the classroom taken from the small tape recorders that parents took with them in their cars on the drive home. In addition, these books included documentation by the parents concerning their children's interests in construction that parents had observed at home. Documentation of the preschool project was completed on individual panels and by taking slides

that could be shown in the classroom. Thus, both the teachers' and the children's voices are interwoven throughout the descriptions that follow.

Shadows in the Tent

The preschool class (20 children, 3-5 years of age) was interested in camping. The teachers had introduced a class camping trip to bring the families closer together as a community, and the teachers decided to follow through on the children's interest. The children mentioned that they wanted to put up a tent in the classroom and bring in flashlights just as if they were on a trip. They believed that flashlights were something you had to have while on a camping trip. The teachers encouraged this activity, expecting that it would lead in the direction of dramatic play involving camping. While the children were playing with the flashlights inside of the tent, they began to notice the shadows that they were creating on the ceiling and the walls. Soon they were moving their heads in front of the flashlight to create more interesting shadow effects.

The teachers noticed the intense interest that the children were showing in the shadows. These events coincided with some beautiful autumn days, so they decided to take the children on some "shadow walks" around the campus. The teachers were very aware of the questions the children were asking with their eyes and their bodies as they suddenly became more aware of the shadows they were creating. There was interest in a natural phenomenon that had not been there before (or at least had not been expressed).

The teachers combined the walk with a number of "challenges" to the children to help guide their natural interest. The addition of challenges is, in many ways, a subtle method of introducing discipline into interest. The children are encouraged to take their interest and use it to achieve an aim. The challenges become progressively more difficult, one building on the other, so that children are both successful in achieving aims and in realizing that one aim immediately leads to another activity and another aim. The teachers gave the children a number of challenges:

Think about where your shadows would be. Go to a place where you think you'll see your shadow, where you think you won't see your shadow.

Try and make your shadows touch (Fig. 1).

Try and make your shadows touch without your body touching.



Figure 1. The children held hands to make their shadows touch.

The challenges helped the children to become engaged in the activity as an aim-driven activity rather than as simply an interest-driven activity. The aims came directly from the activity, and they caused the children to develop their own aims such as "making the shadow be in front of you" and "making the shadows be in back of you."

After the walk, the teachers moved to small group work. Small groups are part of the Reggio Emilia philosophy on group projects (Malaguzzi, 1998), but small group work in this preschool pre-dated knowledge of the Reggio Emilia program. One of the reasons for small group work in this classroom is the disparity in developmental levels of the children in the mixed-age classroom. Small group work is meant to limit differences in the children's zone of proximal development (Vygotsky, 1987), but it also limits the degree to which older children can serve as mentors to younger children. It is difficult to know how Dewey would view small groups based on developmental differences. Dewey (1916) was a strong champion of both diversity and maintaining a "real-world" atmosphere. Schools are one of the few places that artificially segregate by age.

Two groups of approximately four children each were created to work on discussions and to explore the potential for more difficult, discipline-based problems in the activity of interest. The two groups were divided according to age and developmental abilities. The younger group (which was completely male) used documentation from the class shadow walks to spur

interest. Pictures of the walks were put together in a book along with observations the children made about their shadows. The teacher in charge of this book was able to use the combination of the pictures and the children's own words to help them develop questions, ideas, and interests.

The question in which children showed the most interest was whether shadows could move. The children decided that some shadows could move and some shadows could not move. The teacher took the children outside again, but this time, instead of observing their own shadows, the children observed the shadows of other things. The aim became to see if shadows of different things could move. The children found shadows that they thought were permanently fixed, and they made chalk drawings of the shadows. They then revisited the chalk drawings and were able to conclude that the shadows moved while they were away.

The achievement of the aim naturally led to another activity involving the movement of shadows. The children in this group returned to making shadows with artificial light. The teacher set up a spotlight and challenged the children to make shadows with their own things. The teacher expected the children to become interested in the size or the intensity of the shadows. Instead, the interest turned social, with children becoming interested in layering each other's objects (e.g., using shadows to put a tail on an object by layering two objects against the light). The friendships of the children came into play, and they became more interested in working together to create different shadow patterns than the shadows themselves. There was a discussion about the content of the shadows. One of the younger boys suggested that shadows have bones, but he was quickly convinced by his friends that they do not.

The second group was composed of more developmentally advanced children. There were actually two groups - an older mixed-gender group that was shown the same documentation as the younger group, so that they had a chance to cement their thinking and suggest directions for further exploration, and a completely female group that engaged in activity based on those conversations.

The teacher had the children draw pictures that represented shadows. From the drawings, there was a discussion on where the shadows would be in relation to people. The teacher leading this group took a piece of paper and split it down the middle. On one of the pieces of paper, she put a shadow, while she left the other one blank (Fig. 2). On the paper with no sun, the children drew no shadows or shadows that could barely be seen. The teacher then built a bridge with toy building blocks and challenged them to draw a shadow (Fig. 3). The children drew the shadows as if they were coming toward them. The teacher asked what would happen if the sun moved, but this concept was too confusing for the children. The children lost interest in the project. The teacher, feeling that there was nowhere to go with the project without the children's interest, decided that there was little to be gained in pursuing shadow issues at that time.

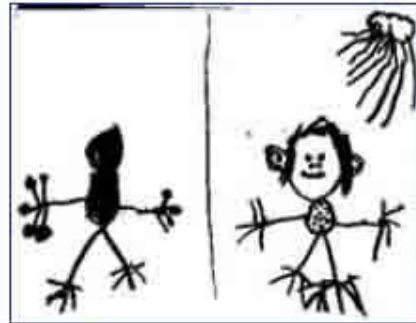


Figure 2. A child's drawing of a shadow.



Figure 3. A child's drawing of a shadow of toy building blocks.

Constructing Construction

The playground for the infant/toddler class (10 children, 6 weeks to 3 years of age) was being torn down by the city in order to replace sewer lines that ran underneath the area. The playground, which had been an important part of the everyday lives of the children, became a full-fledged construction site. The teachers and the children often passed the construction site on walks or as they came into and left school. One of the oldest students (2.7 years) would stop by the construction site each day with his father and then come in and talk about it with his classmates. The teachers, noticing the interest that the children were showing in construction activity, brought more blocks and small construction vehicles into the classroom. The older children in the classroom began carrying vehicles around, showing them to the younger children and telling them what they were ("Gack-o's" for

backhoes and "Bull-D's" for bulldozers). The children also started incorporating the vehicles into activities at the sensory tables, bringing them to the lunch tables and parking them close by during nap time.

The teachers took a twofold approach to the children's burgeoning interest. They took the children on a number of walks, both to the original construction site and to other construction sites around the campus (Fig. 4). They also engaged in a form of *progettazione*. There was an interesting difference between the way the infant/toddler teachers used *progettazione* and the way it was used by either the Reggio Emilia teachers or even the teachers in the preschool classroom. The teachers developed planning sheets to track their brainstorming about the project based on their observations of the children, and they then used these sheets to guide planning and discussion. What is different about the infant/toddler classroom is that the teachers seemed to focus much more on materials. The materials would elicit interest from the children, and the interest would guide the activity. The teachers would introduce materials such as plaster of paris or popsicle sticks into the environment, or arrange rides for the children in vehicles, and then see how the interest, if there was interest, drove them into some type of disciplined activity.



Figure 4. The children visited a construction site on campus.

The disciplined activity emerged as a construction site developed solely through the actions of the classroom children themselves. The children started the site on their private courtyard (Fig. 5), and while the teachers brought in some materials, they encouraged the children to ask for what they thought they needed. The children began to ask for the same materials they saw on the construction sites they visited; they wanted yellow construction tape around the site and wore hard hats and gloves while they worked (Fig. 6). The children were establishing through their own activity a merging of interest and discipline. The older children externalized this merging by drawing the younger children into their activity, showing them the materials and talking to them about what was happening.



Figure 5. The children developed their own construction site.



Figure 6. The children asked for the materials they saw on the construction sites that they visited, including hard hats.

The teachers continued to take the children out into the world, visiting construction sites and talking to the workers. The teachers documented much of the project with pictures and videotapes, creating large portable books of the children engaged in different activities. The children were able to take the books home and to discuss them with their parents. This strategy helped to create a second line of interest where children interacted with their parents. Many of the parents reported having long conversations with their children concerning construction, creating a second line of discipline as well. The teachers brought the parents into the documentation process by offering them the opportunity to borrow the small classroom tape recorder and the classroom camera so they could record conversations in the car and stop to photograph construction sites in their own neighborhood. The documentation by the parents was melded with the documentation by the teachers. The interaction between the two types of documentation created further excitement and interest when the parents and children saw things that "belonged" to them displayed in their documentation. One child went as far as to develop his own construction site in his living room at home.

The project took a number of twists and turns that the teachers did not expect. Near the end of the project, some of the children started to become interested in baseball. The teachers expected the children to move on to other interests. Instead, the children combined their interests, first building a baseball parking lot on their still-active construction site and later building a

baseball field. After about 6 months, one of the children came into the classroom and said the teachers had to go out and take a picture "Now!" - the construction project on the playground was complete. Soon afterward, the children completed their own construction site in the courtyard. The construction fence came down, the signs were put away, trucks came back in, and the construction was complete.

Discussion

The use of long-term projects in the curriculum can be very useful, especially in bringing many of the educational ideals that Dewey envisioned to fruition, but it is fraught with perils and demands great attention and energy on the part of teachers. The teachers must, in a sense, become learners along with the children. The teacher has to be careful to not act as a mentor but as a guide; that is, the teacher cannot think solely in terms of a prearranged destination to activity but must focus on offering a sense of discipline to the activity. Progettazione offers an interesting variation on Dewey's proverbial "lighthouse" (i.e., the teacher sets up the lighthouse to help guide the activity of the student). The lighthouse itself sets a destination, but it also illuminates enough area that students may find port in a different, unanticipated place. Teachers should direct a wide beam of light in their attempts to illuminate areas where children might find their aims. They must be flexible enough to accept the aims that children find through their own activity. In Dewey's (1916) developmental framework, it is young children who are better able to find the interest even in the seemingly most mundane materials and activities; it is the adults who are able to infuse these activities with discipline so that they maintain the momentum that allows for discovery. Children and adults should be able to use each other's strengths in the development of activity, to feed off of each other and become co-creators in true joint activity.

One of the reasons joint activity where the teacher acts purely as guide is so difficult is because teachers so often want to be mentors. The idea of mentorship is prevalent in many aspects of social relationships in our society. We believe that parents should teach children the right way to do things, that teachers should teach students the right way to do things, that managers should teach subordinates the right way to do things. It is difficult and frightening to escape the notion of teacher as mentor, especially as children move into society. Both consciously and unconsciously, we think it is the teacher's role to offer the neophyte the particular types of knowledge that will allow him or her to succeed in the larger social milieu (Vygotsky, 1987). This assumption is apparent in the two examples from the university preschool offered above. The long-term project in which the teachers were most successful acting as guides, rather than mentors, was conducted with the youngest children. The teachers genuinely became co-learners with the children, exploring topics that neither of them knew very much about. It was the children who had complete control of the activity. The teachers maintained discipline and were able to set up parallel relationships that engendered discipline (with the parents) through documentation. But the children's interest had so much control over the direction and the aims of the

activity that even progettazione was primarily concerned with materials that could elicit aims, rather than aims themselves.

The older the children got, the more difficult it seemed to become for the teachers to maintain a non-mentor/guide relationship with the children. The younger children in the preschool shadows project were able to maintain moderate control over their activities. But the teacher of the older group of children seemed somewhat intent on bringing the children toward a specific destination through activity. The differences became apparent in how quickly the children lost interest in the projects as the teacher became more intent on instilling not only discipline but destination.

This discussion leaves some important questions that educators need to ask themselves in using Dewey's philosophies or long-term projects in their classrooms. Is the guide relationship between teacher and child possible with older children? If it is not, is the reason social/historical, or is it the result of the ontogenetic development of the child? Are teachers unable to take a guide approach to the education of young children because non-mentor teaching relationships are so rare in the everyday activity of our society (Vygotsky, 1987)? Or does the development of the thinking of the child force teachers into a mentor-like relationship?

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Comparisons in Early Years Education: History, Fact, and Fiction

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Abstract

This article discusses three schools and considers what lessons modern educators might learn from them. The first school described is the Malting House school, where Susan Isaacs taught for several years. The Malting House school, which existed from 1924 to 1929 in Cambridge, England, teaches the lesson of looking, with attention, at everything that children do. The second school discussed is a present-day primary classroom in Hertfordshire, England, where the teaching methods of Annabelle Dixon are described. This classroom demonstrates the relationship between an educator's core values and her pedagogical practices. The third school discussed is Louisa May Alcott's fictional school, Plumfield. The lesson learned from this school is the importance of the imagination, which teaches us to aspire to a more just and harmonious society.

Introduction

In this paper, I examine three very different schools and classrooms, and I consider what lessons we might learn from them, in terms of enriching our professional thinking. First, I describe a school that is no longer functioning, but for which we have abundant documentation. The lesson from this recent piece of educational history concerns, I suggest, the prime responsibility of educators to learn from the children they teach. The second school represents fact, the present day; I attempt to show how this classroom exemplifies the relationship between understanding and purpose, a lesson in educational values and their steadfast application. The third school is fictional; it is a school where we can, if we choose, learn about the power of the imagination, the power by which we can see into the lives of children and reflect on what might constitute the good life for them, in the Aristotelian sense of the life that is worthy of being lived.

School One

The first school of the three is the Malting House school, in Cambridge, England, founded by the wealthy eccentric Englishman Geoffrey Pyke, whose only son, David, was born in 1921. For this child, his father intended a childhood and an education free of trauma, based on self-discovery and scientific enquiry. To this end, he instigated an experiment in education, not knowing where it would lead. As a first step along the way, in the spring of 1924, he placed this advertisement in a number of journals, including the *New Statesman* and *Nature*:

WANTED - an Educated Young Woman with honours degree - preferably first class - or the equivalent, to conduct education of a small group of children aged 2-1/2-7, as a piece of scientific work and research.

Previous educational experience is not considered a bar, but the advertisers hope to get in touch with a university graduate - or someone of equivalent intellectual standing - who has hitherto considered themselves too good for teaching and who has probably already engaged in another occupation.

A LIBERAL SALARY - liberal as compared with research work or teaching - will be paid to a suitable applicant who will live out, have fixed hours and opportunities for a pleasant independent existence. An assistant will be provided if the work increases.

They wish to obtain the services of someone with certain personal qualifications for the work and a scientific attitude of mind towards it. Hence a training in any of the natural sciences is a distinct advantage.

Preference will be given to those who do not hold any form of religious belief but this is not by itself considered to be a substitute for other qualifications. (Gardner, 1969, p. 54)

As we all know, the advertisement was answered by Susan Isaacs, who went on to open the Malting House school in a spacious house beside the river Cam, in the center of Cambridge, in the autumn of 1924. Isaacs remained there until the end of 1927, when she returned to London. In the first term, there was a group of 10 boys, ranging in age from 2 years 8 months to 4 years 10 months. In 1926-1927, the age range was 3 years to 10 years 5 months, and in the last term covered by Isaacs' own records, there were 20 children in the group, ranging in age from 2 years 7 months to 8 years 6 months. Isaacs' only biographer, Dorothy Gardner (an ex-student and devoted friend of Isaacs), is less than forthcoming about the reasons for Isaacs' departure from the school in 1927, but it was almost certainly due to Pyke's becoming more eccentric, more interfering, and a good deal less wealthy. A terrible crash in the futures of the copper market in the autumn was clearly one of the precipitating factors in Isaacs' move; Pyke's fortunes did not immediately improve, and the school finally closed at the end of 1929 (Gardner, 1969; van der Eyken & Turner, 1969).

Back in London with her second husband, Nathan Isaacs, who had himself briefly worked at the Malting House school, there was plenty of work for Susan Isaacs to do. In the first 2 years of the school's existence, she had amassed a vast quantity of anecdotal records of the children's activities, noted down by Isaacs and her assistants. One of her assistants, Evelyn Lawrence, later became director of the National Froebel Foundation (Note 1) and, after Susan's death in 1948, Nathan's second wife. These notes are the basis for the two substantial volumes in which Isaacs documented the work of the Malting House school: *Intellectual Growth in Young Children*, first published in 1930, and *Social Development of Young Children*, which appeared in 1933. Impressively bulky and detailed as these works are, their lasting importance and interest derive in part from the conditions under which the material was collected. Isaacs' own shorthand description (Isaacs, 1930, p. ix) is that the conditions were "relatively free,"

but this phrase does nothing to convey the extraordinary qualities of this extraordinary school. We need to look more closely.

The conditions of relative freedom took the form of, first, "an all-round lessening of the degree of inhibition of children's impulses" compared to other schools or family groups (Isaacs, 1930, p. 12). Some practical considerations, particularly for the children's safety, did set a number of limits on their behavior. But by today's standards, there were very few limits, and by today's sensitivities, the limits were set in the most unlikely places. For example, in the garden at the Malting House school were several garden sheds, one of which had a most enticing and accessible sloping roof. The rule was not, no climbing, but a much more daring and child-friendly one: only one child on the roof at a time (implicitly an invitation to climb!). By contrast, there was virtually no constraint on the children's verbal expression, their intellectual impulses, their expressions of infantile sexuality, their anal and urethral interests, their feelings (including anger and aggression), their views on everything that happened around them, and their questions.

The outcome of this relative freedom of expression was, as Isaacs claims and as generations of excited readers have discovered for themselves, a "greater dramatic vividness of their social and imaginative and intellectual life as a whole" (Isaacs, 1930, p. 12). Apart from anything else, in comparison with the primary classrooms where I have taught in the past and regularly observe today, there was no time wasted in the business of forming into lines, waiting in lines, completing the registers, (Note 2) collecting lunch money, searching for PE equipment - all the events that add up to evaporated time in Campbell's vivid phrase (Campbell & Neill, 1994, p. 23). All the available time was available for the children, not for the teachers' routines; it was filled with the children's dramatic, vivid lives. Writing in 1927, Evelyn Lawrence described the difference between Malting House children and children at other schools, where they are forced "to wear a mask of seamliness and respectability" (Gardner, 1969, p. 65). Whereas, of the Malting House school, she wrote: "Here the children's crudities, the disorder of their emotions, their savagery even, are allowed to show. Fights and squabbles often occur" (in Gardner, 1969, p. 65). After such a description of children without masks, it is quite a surprise to find a photograph, in van der Eyken's essay on the school, of a cluster of perfectly normal looking children, sitting on the grass - although the caption tries to strike an alarmist note: "Some children have taken their shoes off, others have kept them on. There were few rules" (van der Eyken & Turner, 1969).

The second aspect of the "relatively free" conditions that is worth noting is the combination of the physical environment and the way in which the adult educators responded to the children's impulses and initiatives. These two elements of the curriculum, taken together, led the children to be more active, more curious, more creative, more exploratory, and more inventive than they could have been in any ordinary school. The children passed their days moving freely between a large hall, plentifully equipped, with a gallery and a piano, four small rooms (one used largely as a science laboratory), and a large garden with animals, including, at different times, mice, rabbits,

guinea-pigs, two cats and a dog, hen and chickens, snakes and salamanders, silkworms, a wormery, and a fresh water aquarium. There were two lawns, abundant fruit trees, real bricks for building, space for bonfires, a seesaw with hooks so that weights could be fitted underneath, and much more. Indoors, the provision was no less stimulating: small movable pulleys, which could be screwed in where desired; a full-sized lathe and woodworking equipment; Bunsen burners, with all the necessary trimmings of tripods, gauzes, flasks, and test tubes; modeling materials, textiles, paint, and writing materials; cupboards full of Montessori equipment; microscopes; and dissecting instruments. Given all this, Isaacs' claim that "there was more for us to see, and we could see it more plainly" (Isaacs, 1930, p. 12) seems a calculated understatement, almost designed to provoke.

Provoking some of the children's activities undoubtedly were, as we shall shortly see. But first, I want to emphasize the uses to which Isaacs puts her rich observational material. She did not collect an inert mass of data, nor publish her observations for them to sit tamely on the page. The data have been set to work to construct a coherent account of the development of children's intellectual and emotional powers. In the 1930 book, Isaacs describes their powers of discovery, reason, and thought; in the 1933 sequel, she gives a comprehensive account of their social relations: their hostility and aggression, as well as their friendliness and cooperation, their love and hate, their guilt and shame, and their capacity for compassion and reparation. Every accumulating inch of descriptive text plays its part as evidence for the conceptual framework of learning and development that Isaacs constructs and consolidates. In these two volumes, what she and her colleagues saw, so vividly and plainly, is transformed into a geography of learning, as she charts the children's explorations of both their inner and outer worlds.

For this enterprise, Isaacs was supremely well qualified - not just because of the material in her possession, and the time she devoted to it, but also because of her own intellectual and emotional biography. It is worth pausing here for a brief summary of her life story. Pulled out of school at the age of 15 by her father because she had confessed to becoming agnostic, she stayed at home with her stepmother (her father refusing to speak to her for 2 years) until she was 22. In 1907, she enrolled to train as a teacher of young children (5- to 7-year-olds) at the University of Manchester, where the course was led by Grace Owen. She soon transferred to a degree program and graduated in 1912 with a First class degree in philosophy. She was promptly awarded a graduate scholarship at the psychology department at the University of Cambridge and emerged with a master's degree in 1913. Isaacs then embarked on a series of lectureships - in infant school education at Darlington Training College, in logic at the University of Manchester, and in psychology at the University of London. More important, as I shall argue later, is that around 1920 she started her first psychoanalysis, and in 1922, she started her second. In the same year, she started medical training in order to practice as a medical psychoanalyst, but she did not proceed to work on the wards. She began her own practice in psychoanalysis in 1923, a year before she took up the post at the Malting House school.

So Isaacs was in no way a conventional infant school teacher. She was also a philosopher, a psychologist, and a practicing psychoanalyst. All of these perspectives contribute to the richness of what she saw and the strength and depth of her understanding. In a revealing paper given in 1938 to the Education Section of the British Psychological Society, with the title "Recent Advances in the Psychology of Young Children," Isaacs argues that psychoanalytic research is especially important in the study of children, because it is concerned above all with "the meaning of the child's experiences to himself" (Isaacs, 1948, p. 84, Isaacs' italics).

It is interesting that in the period 1927–1930, Isaacs originally intended to write one book about children, not two, because she thought the same data threw light on both intellectual and emotional development. It was with regret that she abandoned this plan and separated intellectual growth and social development. In *The Children We Teach* (1932), a much shorter book, she reintegrates these two domains, emphasizing the interconnectedness of affect and cognition: "The thirst for understanding springs from the child's deepest emotional needs, a veritable passion" (Isaacs, 1932, p. 113). This powerful insight is constantly emphasized by Gardner (1969) who writes: "no-one who studied with her [as Gardner had done] would be tempted to forget that children cannot be really emotionally satisfied unless they can also learn, nor really learn unless their emotional needs are met" (p. 149).

In my work as an inservice educator with early childhood practitioners, on short courses and at diploma and master's levels, I frequently use examples and extracts from Isaacs' work, attempting to demonstrate how much there is to learn from the Malting House school. But the extracts I select do not always have a very warm reception. I have long abandoned attempts to convince contemporary early years practitioners that Bunsen burners should have a place in their provisions, but I am still surprised by the frequently noisy and hostile responses evoked by passages such as the following:

18.6.25. The children let the rabbit out to run about the garden for the first time, to their great delight. They followed him about, stroked him, and talked about his fur, his shape, and his ways.

13.7.25. Some of the children called out that the rabbit was ill and dying. They found it in the summer house, hardly able to move. They were very sorry, and talked much about it. They shut it up in the hutch and gave it warm milk. Throughout the morning they kept looking at it; they thought it was getting better, and said it was "not dying today."

14.7.25. The rabbit had died in the night. Dan found it and said, "It's dead - its tummy does not move up and down now." Paul said, "My daddy says that if we put it into water, it will get alive again." Mrs. I. said, "Shall we do so and see?" They put it into a bath of water. Some of them said, "It is alive." Duncan said, "If it floats, it's dead, and if it sinks, it's alive." It floated on the surface. One of them said, "It's alive because it's moving." This was a circular movement, due to the currents in the water. Mrs. I. therefore put in a small stick which also moved round and round, and they

agreed that the stick was not alive. They then suggested that they should bury the rabbit, and all helped to dig a hole and bury it.

15.7.25. Frank and Duncan talked of digging the rabbit up - but Frank said, "It's not there - it's gone up to the sky." They began to dig, but tired of it, and ran off to something else. Later they came back, and dug again. Duncan, however, said, "Don't bother - it's gone up in the sky," and gave up digging. Mrs. I. therefore said, "Shall we see if it's there?" and also dug. They found the rabbit, and were very interested to see it still there. Duncan said, "Shall we cut its head off?" They re-buried it. (Isaacs, 1930, pp. 182-183)

But the educators' resistance to the idea of children digging up a dead rabbit is as nothing compared to their comments on passages that describe Isaacs and the children doing what she called "looking inside" dead animals:

14.6.26. During the week-end, the cat had knocked over a cage of mice, and the "daddy mouse" was dead. The children looked at it, and spoke of its teeth, tail and fur. Mrs. I. then said, "Should we look inside it?" They agreed eagerly, and she dissected it in a bath of formalin. Dan, Jessica, Christopher and Priscilla watched with eager and sustained interest. They shuddered when the knife cut into the skin, but comforted themselves with the thought that it was dead. They saw the guts, kidneys, liver, heart, ribs, backbone, airpipe, foodpipe and stomach, brain, inside of eye, inside of mouth, and tongue. Christopher asked to see "the thinking part." They asked Mrs. I. to cut open the gut to show the faeces. Later, the children spent some time watching the silkworms and caterpillars, and feeding the rabbit. (Isaacs, 1930, p. 185)

Little do the educators know, as the discussion rages around the group, that there are, concealed in my teaching file, other extracts that would fan the flames yet higher:

26.1.26. Mrs. I. found that Dan and Priscilla had cut a worm into pieces with a saw. They spoke of the blood and "inside."

18.2.26. The children went into the garden. Priscilla wanted to pull a worm into halves, and said she would marry the boy who did. They all said they wanted to marry her. Dan eventually did pull the worm in halves. Frank then pulled the rest of it apart; they were very excited about this. (It should be noted how few instances of actual cruelty are recorded against Priscilla.) (Isaacs, 1930, p. 205)

I do not often venture to use this last extract: I cannot commend it as useful teaching material. But I remain interested in why today's practitioners respond so violently to material that dramatically illustrates important aspects of children's lives, in particular, the ways in which "the desire to master and hurt," in Isaacs' words (Isaacs, 1930, p. 164), co-exists with "the impulse to cherish," and the problem this contradiction poses to parents and educators who want "to make a positive educational use" of both these impulses. To a certain extent, Isaacs herself anticipated some of these difficulties. In the section of Intellectual Growth in Young Children where she discusses children's biological interests, she writes a superb exposé of the inconsistencies of contemporary adult thinking about appropriate behavior to animals. She demonstrates the contradictions in

adult injunctions to be kind to all animals - except wasps, slugs, mosquitoes, and foxes. And although children must be kind to cats, they must not imitate what cats do to mice or baby birds. Isaacs identifies a variety of confusions, which are still with us, in the cultural constructs with which we do our everyday biological thinking - confusions well worth reflecting on by educators interested in the growth of children's key ideas in the biological domain.

Another difficulty for educators today may reside in the emotional domain. It is possibly - more or less - painful to be expected to tolerate children's expressions of emotions, such as cruelty, rage, and hatred, which, as adults, and particularly perhaps as early childhood educators, we have long learned to stifle and repress. Wearing masks ourselves (of perpetual good humor and an encouraging smile), we may well be alarmed by children without masks, speaking and acting from the heart.

But the core of the matter is surely that all educators (and I include myself) prefer to focus on those characteristics of children that match our educational aspirations, our aims and ambitions, our pedagogical purposes. We select for our attention those aspects of children, indeed of childhood, that fit our finest hopes and dreams, whereas Susan Isaacs did no such thing. When she was preparing *Social Development in Young Children*, she was advised to omit much of her material, because it was considered too shocking and likely to offend. But Isaacs took no notice. "I was not prepared to select only such behaviour as pleased me, or as fitted into the general convention as to what little children should feel and talk about" (Isaacs, 1930, p. 19). So, for example, on November 21, 1924, Isaacs notes that Harry, not quite 5, follows her to the lavatory, peering through the frosted glass and shouting with glee: "I can see her! I can see her combinations!" (Isaacs, 1933, p. 140). Isaacs' comment on this and many other such incidents (some, doubtless, likely to cause offence in an academic paper) is compellingly blunt: "I was just as ready to record and to study the less attractive aspects of their behaviour as the more pleasing, whatever my aims and preferences as their educator might be" (Isaacs, 1933, p. 19).

Isaacs is equally blunt in explaining her position: "The first reason is that I myself happen to be interested in everything that little children do and feel" (Isaacs, 1933, p. 113). This uncompromising position is one of the reasons why Isaacs' thought remains so invigorating today. By being interested in everything, she developed a prodigious capacity to follow the growth of children's thinking and feeling, even when they went in unexpected and undesirable directions. Isaacs was simply not interested in the extent to which children's thought mirrored her own or the extent to which they made their faces fit the conventions of an arbitrary adult society. To see children as Isaacs saw them is to see them whole, vividly and dramatically, with all their strengths and weaknesses intact. The Malting House school teaches us the lesson of looking, with attention, at everything that children do (and think and feel) as they live and learn in our benevolent provisions for them.

School Two

The second school to be presented is of the present day - a small primary school in Hertfordshire, in an area of extreme economic and social disadvantage, within sight and sound of the M25, the congested beltway that circles London. The teacher whose work I will describe, Annabelle Dixon, is now a research associate at the School of Education, in the University of Cambridge, England. Until September 1997, however, she was deputy-head and classroom teacher, and I have had the privilege of observing her work and her class of children on many occasions over the last few years. (Note 3)

During the academic year 1996–1997, when the observations I will draw on below took place, there were between 17 and 20 children in the mixed-age class (from 4 to 7 years old). Many of these children came to school without having had any breakfast, which explains why, when the hatch in the dining hall flew open at 10:30 before the mid-morning break, there was a long queue of children in place to buy slices of freshly buttered toast at a modest price. One of my abiding memories of this classroom is of the children wandering back to the cloakroom, toast in hand, collecting their coats, sometimes losing their toast en route. In trying to bring this classroom vividly before your eyes, I do not intend to trivialize what I have seen there, but to demonstrate that this classroom is a most exceptionally educative environment - a place, above all, of genuine intellectual search.

For example, pinned on the notice board behind a huge, comfortable, embracing sofa is a "New Words" list. Annabelle explains that on this list she and the children record words that the children have not met before. They are encouraged to mark these occasions, to interrupt the discussion or the story to ask for explanations and definitions, and to record the word in question on the list. On one visit, the list read thus:

amaryllis	toffee-nose
ferocious	energy
anxious	cauldron
transparent	nocturnal
gasp	series

These are not dead words, such as are found on many classroom walls, unread, unremarked, unremarkable. These words enter the children's thinking and expand their understanding; even the youngest 4-year-olds are caught up in this process. For example, during story time, a child notices that on the back of the book his teacher is holding up there is a list of books by the same author. Delighted, he calls out: "Miss, that's a series there, on the back of the book." Another day, at tidying up time, a child calls from the book corner: "Miss, we're tidying up the series!" One child confided to Annabelle: "Everything's a series really." When invited to say more, he obliged with a variety of examples - his family (his brothers and sisters, in order of age), the days of the week, the times on the clock, and so on.

On another visit, I recorded another list including the words:

oval	bouquet
environment	identical
S.O.S	impatient
cuboid	saint

nervous calf

On this same visit, my notebook records that Annabelle told me that, in the previous term, the fathers of 4 of the 17 children in the class were serving prison sentences. As I digested this information and copied down the New Words list, I thought of the alarming finding of Tizard and Hughes (1984), in their small-scale nursery school study, that the teachers asked lower-level questions of the children in the working-class sample than of those in the middle-class sample. The comparison is a telling one: there is little that is low level in this classroom. Incidentally, I had already noticed that Annabelle asks fewer questions than many teachers I have observed, although she did tell me about this exchange:

AD: Where does a river start?

Child: "r."

(Her comment to me: "34 years in the classroom and I'm still asking silly questions.")

The children ask good questions though, and follow them through in a search for understanding. For example, Adrian (5 years 2 months) said to Annabelle: "I think I've found something out (demonstrating with the binoculars he has been examining). There's two bits here (points) and two bits here (the eyepieces) and when you look, you only see one picture!"

Many of the children's questions are recorded in a class book, for future reflection and discussion. (For example: "Do cats have to chase mice in real life?" "Why do letters have names as well as sounds?") There are also individual investigations, fired by individual thinkers. I observed Ricky (age 5) collecting his maths book and settling down to write on a page already crammed with numbers:

AD: Ricky, do you want to carry on?

R: Yeah.

AD: Really? Are you sure?

R: Yeah.

AD: (to me) This is the fifth day. He's discovering even numbers.

(His book shows he has reached 748.)

Liam (6 years 2 months), who has different concerns, is working on a different project. The old bulgy and commodious sofa has been replaced by a new one, which is undoubtedly smarter and cleaner, but which only seats three children at a time. Liam is worried that some children are enjoying more than their fair share of this new privilege, so he has collected a printed copy of the class list ("one of my most useful resources," claims Annabelle) and a clipboard and is keeping a tally of who sits on the sofa and how often. His writing is stiff with inaccuracies, if seen in terms of letter formation, capital letters, or punctuation marks, but it is nonetheless effective in his personal project - social justice.

On the notice board next to the New Words list is a quotation from Wittgenstein (himself for a while an elementary teacher, in the 1920s, in small village schools up in the mountains south of Vienna): "The limits of my language are the limits of my mind." (Note 4) Annabelle's response to this apothegm is to structure much of her teaching around what she calls "tool-words." The first of these words to become important in her pedagogy

was "problem," when she realized, some years ago, that without this word in their working vocabularies, children did not appreciate what was happening to them when they met a problem. She reasoned that if they could understand what kind of an experience a problem was, they would more readily deploy their intellectual and emotional energies in finding ways of solving it. And so it proved. Once her pupils had grasped that a problem (a disagreement with a friend, a technical difficulty in a construction project with the blocks, a puzzling observation of the natural world) could be understood as a challenge to their inventiveness and ingenuity, indeed could be relished, explored, and finally resolved, they were much less likely to walk away from problems, to abandon their projects, or to refer their disputes to adult authority.

Building on this discovery, and the children's appetite for more, Annabelle has developed a list of essential "tool-words" for children's thinking, which includes the cluster of concepts identical, similar, and different; the verbs compare, remember, comment, and question; and the nouns imagination, team, and mystery. During one of my visits, Annabelle showed me the work the class had been doing on the school's behavior policy document, which had recently been written in consultation with the older pupils, ages 8 to 11. Annabelle's response to the policy was to ensure that the key words used in the document could be understood by her much younger children: she accomplished this goal by building up working definitions of words, such as respect, drawn from the children's lives. A large sheet of paper recorded this work in progress:

"Keeping secrets from people isn't respectful."

"Swearing at people isn't respectful."

Annabelle overheard a child swearing quietly to himself one day, while searching his tray for a missing treasure. When he saw her, he stopped, with a guilty flush, but not because his teacher had heard him. "That's not respecting myself, is it?" he explained. My own notebook records Stephen (age 6) complaining to the whole class, gathered for a discussion, "People have been talking about my cold sore. That wasn't respectful."

In this classroom, respect is a key theme: respect for children's powers, for their emotional and intellectual energy. In Annabelle's teaching, this respect translates into a willingness to follow what she calls "the grain of their thinking," rather than trying to "teach against the grain." It is transparently clear, from minute to minute in this classroom, that there is a direct relationship between the lived curriculum, the first-hand experiences of these young learners, and the values of the educator who provides and organizes their experiences. It is the children's strengths that are valued, not their weaknesses. Their powers to do, to think, to feel, to understand, to represent, and to express are given space and time to grow. The curriculum that these children and their teacher construct together offers them both nourishing food and challenging exercise; the quality of the children's learning reflects their teacher's faith in their limitless potential to learn.

In presenting this brief description of one particular classroom in one particular school, I want to exemplify a much more general theme and suggest that what can be learned from such a classroom (and I have no

doubt there are others like it, perhaps not identical, but similar) is the close and necessary relationship between values and classroom practice, between values and schooling, between values and the whole enterprise of education.

In my work as external evaluator for a number of local education authorities over the last 10 years, I have, inevitably, started from my own perspective as a value-infested educator, but I do not believe this perspective prevents me from trying to understand the values as well as the practices of other educators, those whom I am observing and whose effectiveness I have been charged with evaluating. In one such project, the Hampshire program of one-term entry to primary school (Drummond, 1995), I drew particular attention to one aspect of the findings from 200 hours of observation in 50 selected schools:

The evidence suggests that in those classrooms where expectations of the children were high, the quality of learning was also high. When the activities made demands on children's powers to think, to solve problems, to imagine, to create, to build, to express themselves and to organise their work, the children responded actively and with enthusiasm. When the programme required the children to sit and listen for long periods of time, to follow instructions, to produce prescribed outcomes, the children met these expectations, certainly. But opportunities were lost for richer and more rewarding learning. (Drummond, 1995, p. 53)

This comparison, not unexpected but nonetheless important, has something to say about the need for high - but realistic - demands on children's intellectual and social powers. But I am suggesting here that the comparison has more than one lesson to teach. It also underlines the seriousness of our collective professional responsibility to make wise choices in the priorities that our classroom practices enact and embody. Which capacities of children do educators, and the educators of educators, really value? Do we, as a professional community, value young children most highly as independent, creative freethinkers or as people who keep silent when they have plenty to say, who walk when they would choose to run, and who sit up straight, with alacrity, whenever we ask them to? There are choices to be made in this domain, choices that are made every day in classrooms, corridors, assembly halls, and lecture theaters. They are choices worth examining, which is my justification for having taken this space to describe, however selectively, one classroom, one set of values, one set of practices.

School Three

As my article title suggests, the third school is a fictional one, although the selection of just one school in this category has been extremely difficult. It was with great regret that I abandoned the project of exposing the schools and schoolrooms where Ivy Compton-Burnett's fictional (and autobiographical) children are educated. (Note 5) Another possibility, grudgingly relinquished, was an exploration of the work of the contemporary writer Anne Fine (1993, 1994, 1996), a critical communicator on the sociological structures of schooling thoroughly in the W. A. L. Blyth tradition (see, for example, *How to Write Really Badly*, *Flour Babies*, and *The Angel of Nitshill Road*). There is a fascinating school in B. F. Skinner's

(1962) utopian fantasy *Walden Two*, where the students are never graded and are not taught traditional subjects at all, only the generic skills of learning and thinking. Hardest of all to set aside was the school described by the great Polish educator Janusz Korczak (1992) in *When I Am Little Again*, a moving interpretation of a few days of classroom life as seen through the eyes of a child, the author himself, grown "little again."

The fictional school that I finally selected is Plumfield, which draws its inspiration from a real-life school, as of course all fictional schools do to some extent (except in William Morris's (1901) utopian novel, *News from Nowhere*, where there are no schools). Plumfield is the creation of Louisa May Alcott (1832–1888). It first appears in the second half of the double volume of *Little Women and Good Wives* (1868), at the very end of *Good Wives*; it is the central theme of *Little Men* (1871) and is still a successful school in the background of *Jo's Boys* (1886). The real-life school from which some of Plumfield's practices are drawn is the Temple School, a short-lived experiment in progressive education, founded and directed by Alcott's father Bronson Alcott, writer, transcendentalist, and friend of Emerson, Thoreau, Hawthorne, and the amazing Peabody sisters.

The Temple School was not Bronson's first school, but it was undoubtedly the most visited and the most notorious. Bronson Alcott began teaching in 1825 in Cheshire, Connecticut, in a school regarded as alarmingly progressive, which lasted only 2 years. The school found some admirers in Boston, however, where, in 1834, after further failures in Philadelphia, Bronson opened the Temple School with 18 pupils, boys and girls between 5 and 10 years old. The walls were decorated with busts of Plato, Jesus, Socrates, Milton, and Shakespeare. Bronson modeled himself on both Jesus and Socrates, and his pedagogical approach was a combination of parable, sermon, and Socratic dialogue. His daily, hour-long conversations with the pupils were faithfully transcribed, as they took place, by Elizabeth Peabody and later by her sister Sophia (wife of Hawthorne). The first year's work was published in 1835 as the *Record of a School* (Peabody, 1835). One brief extract will give a flavor of these unique proceedings:

Alcott: Which was first in time, an acorn or an oak?

Child: Sometimes one is first, and sometimes the other. In the woods, oaks grow up wild; and you can plant acorns and have oaks.

Another child: I think God made oaks first, and all the other oaks there have ever been, came from the acorns of those first oaks.

Alcott: Does light prove darkness or darkness light?

Several: Each proves the other.

Alcott: Can nothing prove something?

All: No.

Child: I think darkness is something.

Alcott: Is darkness anything to your senses?

Child: No; it only seems so.

Alcott: What does it seem to be?

Child: It is the shadow of the light. (Bedell, 1980, p. 111)

The school prospered, and visitors flocked to listen and admire. However, when Bronson widened the scope of these conversations to include such topics as marriage, love, birth, and circumcision, the tide turned. A second volume of transcribed dialogues, *Conversations with Children on the Gospels* (A. B. Alcott, 1837), proved his downfall. This volume, according to the *Boston Courier*, was "a more indecent and obscene book (we can say nothing of its absurdity) than any other we ever saw exposed for sale on a bookseller's counter" (Saxton, 1977, p. 92). By the spring of 1837, the experiment was over, precipitated by the admission of a black child, Susan Robinson. This act of principle, by a convinced and passionate abolitionist, caused the parents of his few remaining students to withdraw their children.

Louisa May Alcott was born in 1832 and celebrated her third birthday party at the Temple School, wearing a crown of flowers and distributing cakes to the students. She and her three sisters, later to be known by generations of young readers as the four March girls (their mother's maiden name was May) were all educated at home by Bronson and so were intimately acquainted with Bronson's unconventional educational methods, which we find, 35 years on, transformed into the fictional Plumfield, most fully described in *Little Men*. Plumfield is an integrated, coeducational, inclusive boarding school, managed by the wild tomboy Jo March in her new role as the compassionate and motherly Mrs. Bhaer, wife of the German immigrant Professor Bhaer: "a happy, homelike place," Jo calls the school, at the end of *Good Wives*.

Little Men is unusual in Alcott's oeuvre in having next to nothing by way of a plot: the center of interest is the children and their daily lives. Plumfield's children, like the children at the Malting House school, are recorded in their totality, children as they really are - unique individuals who are at times, and by turns, mischievous, timid, sickly, spoiled, lazy, grouchy, courageous, teasing, compassionate, and - all of them - thoroughly loveable.

The following extract will introduce the school to those whose own childhoods were not infected with Alcott's imaginative powers. It is taken from the first chapter and reveals how the Plumfield experience bursts upon a new boy, Nat, who arrives late on a Saturday evening. Safely tucked up in bed, after a luxurious bath and a hot sweet drink, Nat is startled by

the sudden appearance of pillows flying in all directions, hurled by white goblins who came rioting out of their beds. The battle raged in several rooms, all down the upper hall, and even surged at intervals into the nursery, when some hard-pressed warrior took refuge there. No one seemed to mind this explosion in the least; no one forbade it, or even looked surprised. Nursey went on hanging up towels, and Mrs. Bhaer looked out clean clothes, as calmly as if the most perfect order reigned. Nay, she even chased one daring boy out of the room, and fired after him the pillow he had slyly thrown at her.

"Won't they hurt 'em?" asked Nat, who lay laughing with all his might.

"Oh, dear, no! We always allow one pillow-fight Saturday night. The cases are changed to-morrow; and it gets up a glow after the boys' baths; so I rather like it myself," said Mrs. Bhaer, busy again among her dozen pairs of socks.

"What a very nice school this is!" observed Nat, in a burst of admiration.

"It's an odd one," laughed Mrs. Bhaer; "but you see we don't believe in making children miserable by too many rules, and too much study. I forbade night-gown parties at first; but, bless you, it was of no use. I could no more keep those boys in their beds than so many jacks in the box. So I made an agreement with them: I was to allow a fifteen-minute pillow fight, every Saturday night; and they promised to go properly to bed, every other night. I tried it, and it worked well. If they don't keep their work, no frolic; if they do, I just turn the glasses round, put the lamps in safe places, and let them rampage as much as they like."

"It's a beautiful plan," said Nat, feeling that he should like to join in the fray, but not venturing to propose it the first night. So he lay enjoying the spectacle, which certainly was a lively one A few slight accidents occurred, but nobody minded, and gave and took sounding thwacks with perfect good humour, while pillows flew like big snowflakes, till Mrs. Bhaer looked at her watch, and called out:

"Time is up, boys. Into bed, every man Jack, or pay the forfeit!"

But not all the children's frolics are so innocent and lighthearted. Under the influence of Dan, one of the most challenging of Jo's little men, the boys learn to swear, to smoke, to drink, and to play cards. The downward spiral seems inexorable, until Tommy Bangs sets his bed on fire and they are all rescued and set on a straighter path once more. The boys (the girl pupils arrive later) spend extraordinarily little time in the schoolroom; far more important in their lives are the garden, the orchard, their dens, the trees they climb, their band, their story-telling, their menagerie, their museum, and the stream they regularly fall into. Through her descriptions of life at Plumfield, Alcott offers a perspective on curriculum that is at least as progressive as her father's. Essentially, it is a curriculum of relationships, constructed within a harmonious vision of what society might be - loving and inclusive, where children's growth and well-being, in the most comprehensive senses of those words, are central values.

Professor Bhaer teaches the children German, Greek, Latin, and Algebra, but Jo teaches what she knows: "lessons more important than any taught in school" - and yet it is a school in which she teaches these things. (Note 6) She teaches her little men to care for one another; she teaches them "honesty, courage, industry, faith in their fellow-creatures and in themselves." She imagines the world transformed by such an education:

"Dear me, if men and women would only trust, understand and help one another as my children do, what a capital place the world would be" and Mrs. Jo's eyes grew absent, as if she were looking at a new and charming state of society.

Little Men can be read as an account of the good life, for adults and children, being lived in a good society, where the children largely educate

one another. They do so through their turbulent and passionate relationships, as well as through their play, their shared imaginative explorations of the universe, and their intrepid physical explorations of the tops of trees and the tangled dark center of the forest where Rob and Nat get so terrifyingly lost. Their induction into the good life, their education in the moral domain, is continuously carried out in every corner of Plumfield's sheds and gardens and orchards, as well as in the Socratic schoolroom, with its slates and textbooks. "Dear me," explains Jo, "half the science of teaching is knowing how much children do for one another and when to mix them." The dissolution of the boundaries between the home and the school makes Plumfield a society in miniature, a place that is humane enough for children to flourish in and to learn the real meaning of the humanities they study in their books.

Although some aspects of Plumfield are rooted in Alcott's own first-hand experiences, it is, essentially, a triumphant work of the imagination. In this imaginary school, Alcott shows us, not simply children's learning, but children's lives as they might be, if learning were coterminous with living, and if body and mind, thinking and acting, reason and passion, the one and the many could be educated together. Alcott sets these living, learning children into a different kind of school, more home than school, more society than home. Furthermore, into this "new and charming state of society," Alcott introduces a different kind of teacher. These teachers, according to Susan Laird, "work at the sidelines, as attentively participating observers, not at the centre as autonomous dictators of their students' learning experiences" (Laird, 1991, p. 283). And all this nearly 50 years before Dewey picked up his pen (*Democracy and Education* was published in 1916).

Conclusion

In this concluding section, I attempt to distill the lessons that I believe can be learned from these three schools; I do so as a way of emphasizing the need for the whole professional community of early childhood educators to take whatever help we can get to support us in the task of doing our own thinking, reflecting, and analyzing, rather than simply responding to the directions of others.

Earlier, I quoted Susan Isaacs: "I am interested in everything that little children do. . . ." This interest was strengthened by Isaacs' unshakeable conviction of the "desperate need of children to be understood " (Isaacs, 1933, p. 13) and of their equally burning desire to understand: "The thirst for understanding . . . springs from the child's deepest emotional needs . . . [it is] a veritable passion" (Isaacs, 1932, p. 113). Isaacs is outspokenly clear that some kinds of schooling, some parts of the education process as it was currently being practiced, could stifle this passion and crush this strong, spontaneous, constant impulse towards learning. The comparisons she makes between what is and what might be cannot have been comfortable reading for contemporary educators intent on maintaining the status quo. Only in the infant school, says Isaacs, "before children have been taught to separate learning from playing and knowledge from life, will you see the

strength and spontaneity of the wish to know and understand" (Isaacs, 1932, p. 113). This act of seeing, she implies, is central to the work of the teacher.

I find it remarkable that in Isaacs' published work (her lectures to teachers have not, I think, been preserved), there is little to read about teachers and teaching. There are some exhilarating passages in *The Children We Teach* and a stirring letter, written in 1936, full of stinging criticism of what she saw in schools, which has a certain relevance for readers today:

We teach reading and writing far too early, substituting sterile attempts to compose with the pen for living communication by word of mouth. Today the school deliberately deadens the child's (real) interest and idolatrises the formal tools of learning. (Gardner, 1969, p. 166)

But there is little by way of positive exhortation: her position is that teachers must start with children and develop their thinking from there. In an examiner's report, for example, she writes:

I do wish we could give up teaching these dreary old theories of play. It seems to me pathetic that students spend so much time on discussing Schiller, Groos, etc instead of . . . going direct to children at play and seeing for themselves what play does for children's development. (Gardner, 1969, p. 155)

This is where I believe Isaacs has most to teach us today - and tomorrow. The lesson to be learned from the Malting House school, and every line that Isaacs wrote about it, is that the starting point for effective educational practices is to attend, respectfully and systematically, to "everything that children do."

In describing Annabelle Dixon's classroom, I tried to demonstrate the relationship between an educator's core values and her pedagogical practices. In a sense, whenever teachers teach, and whatever else they teach, they always teach themselves. The lessons to be learned from making comparisons between the practices of different educators, from the present or the past, is that "why" questions, in answer to which we can establish the value base of our own work, are more useful than "what" and "how" questions. Asking "why" of others can lead to asking "why" questions of oneself. However, asking why questions, particularly of oneself, can take a considerable toll on the educator's sense of security and well-being. To ask oneself why is always to risk the Mother Hubbard effect: the cupboard of reason, rationale, justification, explanation may turn out to be bare. In effective classrooms, such as Annabelle's, the cupboard is well stocked. Practices can be justified. Arguments can be convincingly made about the importance of certain kinds of learning, about the power of children's thinking, about the activities and experiences that are most likely to strengthen those powers. Educators who can and do speak out as articulate advocates for children's learning are a most valuable resource for all other educators who are committed to the enterprise of coupling up their most dearly held educational beliefs with the routines and rituals of schooling, with their moment-by-moment interactions in the classroom. Understanding children and children's learning is not enough; effective educators understand themselves. Anyone who can help in supporting this process - and through courageous acts of comparison, every educator can help - is a

most welcome member of a profession that has never ceased striving for quality, but has had, in recent years, limited opportunities to do this kind of thinking, this kind of work.

Finally, I used a fictional classroom, conceived in the imagination of an unjustly neglected 19th-century writer, to illustrate the abiding importance of this power in the lives of teachers and other educators. When, in other contexts, I try to put together arguments to establish the centrality of the imagination in the process we call early childhood education, I am often struck by the confidence and clarity with which other writers from outside this particular professional community make their case. Mary Warnock, for example, has this to say:

I have come very strongly to believe that it is the cultivation of imagination which should be the chief aim of education, and in which our present systems of education most conspicuously fail, where they do fail . . . in education we have a duty to educate the imagination above all else . . . (Warnock, 1976, p. 9)

. . . imagination is that (power) by which, as far as we can, we see into the life of things. (Warnock, 1976, p. 202)

The power to see into the life of things - and into the lives of both teachers and children as Alcott did - is an essential component in the professional capacities of educators of young children. These educators need to be strong in the exercise of their professional imaginations, not indulging in wishful thinking or planning in ever more precise detail their desirable curriculum outcomes, but seeing "into the life of things," seeing into the full-blooded lives of the children for whose learning they have taken on responsibility. To strengthen this power, I am arguing, educators need to commit imaginative acts of their own - in company with Alcott, or Anne Fine, or Janusz Korczak. These tutors of the imagination can help us to see more plainly, and more deeply, if we do not take fright at the intimacy necessitated by such seeing or at the learning that might result from it. Isaacs wrote, in a late paper, in the context of children's lives, that learning depends on interest, and that interest is derived from desire, curiosity, and fear (Isaacs, 1952, p. 108). All these emotions are familiar to teachers too. They are all part of their most binding responsibilities: to learn more about children, teaching, and learning; to increase their understanding in the interests of children; to put that understanding to work for children. I have presented, in this paper, three of the lessons that will play a part in this learning: the lesson of looking, of seeing more plainly; the lesson of value, of learning to marry purpose with practice; and the lesson of the imagination, which teaches us to aspire (as Alcott did) to a more just and harmonious society, in our schools, in our shared futures.

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Notes

1. The National Froebel Foundation was founded in 1938 (by the unification of the Froebel Society and the National Froebel Union) and was responsible for the training and examination of teachers in Froebelian methods, awarding the Froebel Teacher's Certificate to its own students and to external students from, for example, the Froebel Educational Institute at Roehampton, Surrey.

2. This ritual is known as "taking attendance" in American classrooms.

3. I am enormously grateful to Annabelle Dixon for the many rewarding discussions I have had with her over the years and for the ways in which she has enriched my thinking and my understanding.

4. The exact reference, as I found when preparing this paper, is just as pithy and just as relevant to children's thinking and learning: "The limits of my language mean the limits of my world" (Wittgenstein, 1922).

5. Ivy Compton-Burnett (1884–1969), English novelist, wrote 20 idiosyncratic and powerful novels about domestic life in upper-class Edwardian families, some of which disturbingly resembled her own. Her recurring themes are power, selfishness, domination, cruelty, and criminality. The families she describes are peopled by a number of remarkably precocious children, whose teachers, tutors, and governesses are no match for them. The schoolroom scenes in these novels have much to say about the complexity and drama of pedagogical relationships.

6. In a useful commentary, Susan Laird, a leading feminist in curriculum studies, makes the thought-provoking observation that Mrs. Jo, as the children call her, is a school teacher but not a classroom teacher (Laird, 1991).

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Hirsch (Eds.), *Practical Visionaries: Women, Education and Social Progress 1790–1930* (Longman, 2000) and "A Light in the Darkness - George MacDonald's Stories for Children" in G. Cliff Hodges, M. J. Drummond, & M. Styles (Eds.), *Tales, Tellers and Texts* (Cassell, 2000).

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The Missing Support Infrastructure in Early Childhood

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Editors' Note:

The Gallagher and Clifford paper presented below addresses one of the central issues in the field of early childhood education and care: the creation of an infrastructure to support early childhood personnel so as to optimize the care and education of young children in this country. Because the authors have raised such critical issues, we are using this opportunity to take advantage of the electronic medium of the journal by providing a forum for readers to contribute to a continuing discussion of them.

We invite you to be part of this ongoing electronic discussion. We have provided a "dialog box" that makes it easy to comment on the article to suggest additional considerations, to contest or agree with the authors' assertions, or to focus on how we might move this discussion forward in the policy arena. We will post selected substantive contributions by topic on this Web site for further discussion. Please join us in this important discussion.

Lilian G. Katz & Dianne Rothenberg

Abstract

Noting that current programs for young children outside the home lack a comprehensive infrastructure or support system to stand behind the delivery of services to the child and family, this paper proposes the development of a support infrastructure designed to provide continuing and effective assistance to those who work with young children. The paper notes that a support system for early childhood services would include the following components: (1) personnel preparation, (2) technical assistance, (3) applied research and program evaluation, (4) communication, (5) demonstration, (6) data systems, (7) comprehensive planning, and (8) coordination of support elements. The paper next discusses barriers to policy implementation that would result in a coordinated support infrastructure. These barriers are institutional, psychological, sociological, economic, political, and geographic in nature. The paper then suggests strategies that might be implemented to bring about change, including identifying and cultivating powerful political forces, establishing planning structures, mounting a media initiative, and involving professional organizations. The paper concludes with suggestions for financing the infrastructure.

Introduction

As we move into the 21st century, young children under the age of 5 are still without comprehensive public policies to protect or enhance their status. While there are some subgroups in that age range that have received policy attention, for example, children in poverty and children with disabilities, most young children remain outside society's protective umbrella. There is currently no comprehensive or universal set of policies designed to provide a blanket of care and developmental enhancement for young children birth through 4 years without regard to their particular individual circumstances.

The issue as to where young children should be raised, and by whom, has been muted by the fact that currently over 60% of mothers with children under 5 are in the workforce (Galinsky, Howes, Kontos, & Shinn, 1994). While there should be very few barriers erected to parents raising their children as they choose, there obviously needs to be some public and societal answer to the question "Who cares for young children?"

One of the most striking characteristics of the current programs for young children outside the home is the absence of a comprehensive infrastructure or support system to stand behind the delivery of services to the child and family. The definition of the term "infrastructure" by Webster's New World Dictionary is "a substructure or underlying foundation; esp., the basic installations and facilities on which the continuance and growth of a community, state, etc., depend, as roads, schools, power plants, transportation and communication systems, etc." (Guralnik, 1972, p. 723).

The characteristics of high-quality child care programs do not really stir many debates within the professional community. A definition of high-quality child care has been presented by many observers (see Kagan & Cohen, 1997; Gormley, 1995; Bredekamp, 1987) who agree that there should be well-trained personnel, working in an attractive setting, with materials designed to enhance children's development. The children should work and play in small groups with a reasonable child-to-teacher ratio, and there should be opportunities for continued staff training. The policy issue is how to engineer these favorable conditions in the face of the many problems and limitations that child care workers and directors are confronted with, namely, limited government support, restricted family resources, and a fragmented support system (Helburn, 1995).

As Gormley (1995) has pointed out, "Child care is a labor problem, a social problem, a regulatory problem, and, of course, a familial problem" (p. 32). Given the range of issues to be addressed, it seems unlikely in the extreme that such problems can be solved by a local day care center director and staff without substantial help from many different agencies and institutions in the broader society. The purpose of this paper is to propose the development of a support infrastructure designed to provide continuing and effective assistance to those who work on the "firing line" with young children.

Societal Infrastructures

There are many analogous enterprises in this society devoted to delivering services to the public that have designed infrastructures to

support the significant activities that we value and need (Schopler, 1987). Two examples of such infrastructures are the support systems behind the medical practitioner and the infantry soldier. In each instance, the person doing the "hands-on" work relies on many different people and institutions in order to do his or her job effectively. Physicians' work relies on research conducted in the medical schools and in the private sector designed to generate effective treatment procedures for their patients. Physicians have an active pharmaceutical enterprise designed to alert them to the latest in drugs for their patients, they have laboratories and X-ray capabilities for more effective diagnosis, a variety of nurses and paraprofessionals to provide support for their practice, plus hospitals available for intensive service delivery when needed.

In many instances, the patient may be unaware of these various support or infrastructure features. She knows that the doctor has examined the patient and prescribed a treatment. If such treatment works, the patient is convinced that she has a "good doctor" and may not be aware that what she has is, in fact, a good system of health care, of which the physician is one important feature.

In a similar fashion, though with different purposes, infantry soldiers have been lionized for their heroism in combat - justifiably so, but consider the research and development effort to produce better weapons, a vast communication and logistics enterprise designed to have the forces and right materials in the right place at the right time, a major intelligence effort to seek information on the intentions of the enemy, and so forth. With this impressive support, the infantry soldier is free to do his job in the most efficient way.

Compared with these two examples, and many more that we can draw upon from our complex society, the support mechanisms available to the child care provider are scattered and uncertain. Instead of focusing our concerns on the poorly paid child care workers and overcrowded centers, we might find useful a review of what would be needed to transform early childhood programs into a high-quality system of services.

The Quality Support System

We have known for some years about the various elements of a support system for early childhood services, including an infrastructure that can be introduced to upgrade this human service system (Gallagher, 1994). Some of these components are (1) personnel preparation, (2) technical assistance, (3) applied research and program evaluation, (4) communication, (5) demonstration, (6) data systems, (7) comprehensive planning, and (8) coordination of support elements.

Personnel Preparation

There is little disagreement about the important role that the personnel preparation of a wide variety of specialists can play in the design of high-quality services for young children (Kagan & Cohen, 1997). Yet these programs for personnel preparation are widely scattered by discipline, by geography, and by institution, and they are rarely linked directly to the service delivery enterprise. If we are to have competent staff, a wide array

of personnel preparation programs (preservice and inservice) are necessary, with considerable stress placed on upgrading the capabilities of persons now on the job through short-term training. There needs to be an agreement on a career ladder that would allow a person working in early childhood to continuously improve herself or himself through personnel preparation. Universities, community colleges, resource and referral agencies, as well as state and federal agencies, should all participate collaboratively in the design and execution of a total personnel preparation program (Bredenkamp, 1987). One example of specific attempts to improve personnel preparation is the TEACH program in North Carolina that provides subsidies for child care workers willing to make a commitment to further education (Blank & Poersch, 1999).

This TEACH program, designed to upgrade the education level of the teacher and provide additional compensation for the teacher, is now in operation in 13 states. In addition to improving staff quality, the program also aims to reduce the high turnover in such positions.

Personnel preparation may well be the greatest stumbling block to the development of high-quality service for young children. Available research notes the critical role of personnel preparation but also documents the low level of general education and specialized training of those working with young children in the United States (Helburn, 1995). A major national initiative is needed to raise the level of trained personnel available to teach our young children.

Technical Assistance

Many early childhood programs have existed as lonely castles without easy access to professional support or assistance. Consequently, they have only the skills and knowledge of the on-site staff to guide them in their decisions regarding high-quality child care. The establishment of various technical assistance programs, perhaps regional centers within a state, would allow local providers to have access to a wide variety of consultation and support personnel that seems necessary for high-quality programs.

One source of technical assistance has been the network of resource and referral centers (<http://www.naccrra.org/>) funded by a combination of state and local sources with additional help from the Child Care Bureau U.S. Department of Health and Human Services. These centers have been established to aid parents in finding proper child care resources for their children, but they also provide some short-term training and assistance to early childhood programs, depending on the staffing and commitment of the individual centers.

The Head Start Bureau has established a series of Quality Improvement Centers (QICs) providing technical assistance to Head Start programs on a regional basis. In addition, there are other centers that provide support to personnel working with children from a variety of special populations. For example, QIC-D centers are designed to help the Head Start programs and staff cope with the special problems of children with disabilities (Zigler, Kagan, & Hall, 1996).

The Office of Special Education Programs has had a long history of supporting a variety of programs stressing technical assistance. The

Regional Resource Centers provide a series of support functions for programs in their areas, and the National Early Childhood Technical Assistance System (NEC*TAS) (<http://www.nectas.unc.edu>) has recently celebrated 25 years of consecutive service as a technical assistance center to programs for children with disabilities. NEC*TAS is now assisting state-level personnel in planning the allocation of resources for programs for young students with disabilities (Trohanis, 1985).

Each of these major federal agencies identified the need for technical assistance, more or less independently of each other. Many state departments of education have also become aware of the need for technical assistance but are currently struggling with limited personnel and the problem that the same individual who monitors programs also is expected to provide technical assistance for them - two incompatible roles. The vast majority of programs for young children have little or no technical assistance available to them.

Applied Research and Program Evaluation

High-quality programming and delivery of services require that early childhood educators are reflective about our own performance and ourselves. Calls for "accountability" have become increasingly strident but are rarely accompanied by the necessary tools, strategies, or resources necessary to achieve that goal. There are several complicating factors that will require much attention before an acceptable level of accountability can be satisfactorily reached (Wiggins, 1993).

Issues of program evaluation in early childhood are complicated by the lack of general agreement as to the goal or goals from one program or community to another. Are the program goals the enhancement of cognitive development, the mastery of social skills, the attainment of effective attention and self-control, or other compelling goals?

Most early childhood programs must face the fact that, at their best, they may control only one-quarter of the influences or variance of the key developmental variables of the child. The neighborhood, family, siblings, and so forth, to say nothing of genetics, constitute the rest of the influence on the child. How can we sort out the program's influences in the face of these other forces?

Some states have attempted to begin an effort at evaluating early childhood programs such as the Smart Start program in North Carolina (Bryant et al., 1999) and the Georgia Prekindergarten program (Henderson, Basile, & Henry, 1999). The experience of the North Carolina program is instructive. Each of the counties was responsible for the design of its own early childhood program, and so the goals and program emphasis varied from one county to another. There were no generally agreed upon goals such as one would find in the primary grades, where mastery of reading and arithmetic skills makes broad state assessments more interpretable.

There remains the problem of how to organize or institutionalize an evaluative effort. Where will the headquarters and leadership of this effort be? Will it be contracted out to higher education? Will it be monitored through state agencies? And where will the necessary funding come from? We have, so far, greatly underestimated the cost of serious efforts in

accountability. All of these issues and more suggest that this part of the infrastructure will be in a formative stage for at least the immediate future.

As is the case in medical research, the federal government has taken the lead in supporting funds for education and social science research. The Office of Educational Research and Improvement (OERI) and the Office of Special Education Programs (OSEP) in the U.S. Department of Education and the National Institute for Child Health and Human Development in the National Institutes of Health, as well as the Head Start Bureau and the Child Care Bureau in the U.S. Department of Health and Human Services, have made major investments in such investigations. Research findings can, and should, be universally applicable without regard to geography, and so it is less important that individual states sponsor this research activity - that is, what we learn about the enhancement of social skills in Texas can be easily adapted in Massachusetts.

One major initiative for collaborative research at the federal level has been a federal partnership among the National Science Foundation (NSF), the Department of Education's Office of Educational Research and Improvement (OERI), and the National Institute for Child Health and Human Development (NICHD). This Interagency Education Research Initiative is designed to improve prekindergarten–12 student learning and achievement in reading, mathematics, and science by supporting rigorous research on large-scale implementations of promising educational practices. It is noteworthy that this \$30–50 million initiative includes prekindergarten programs. Our overall investment in research for young children remains small and scattered compared with other age groups.

Communication

In this era of advanced electronics, it is surprising not to find more programs for young children linked, through a dozen different networks, to the latest knowledge and practices in what we know about young children, their care, and stimulation. Some coordinated efforts at devising a communication network and establishing an ongoing network on a statewide level would provide an important support service for the child care provider. The National Child Care Information Center (<http://www.nccic.org>) and the ERIC Clearinghouse on Elementary and Early Childhood Education (<http://ericee.org>) have begun the task of charting and disseminating what we collectively know on this complex topic.

One of the many potential uses of our advanced technology for communications has been in personnel preparation. Distance learning classes designed to upgrade the capabilities of child care workers and early childhood specialists are becoming increasingly evident. To this date, the technology has run ahead of the administrative and political support necessary to institutionalize such efforts.

There are a number of states that have been active in establishing a stronger communication bond between the various elements of an early childhood program. In addition, there appears to be a substantial willingness on the part of public decision makers to spend more money on necessary technological additions so that such communication systems can become a reality. The Web site of the National Association for the Education of

Young Children (NAEYC) (<http://www.naeyc.org>), in 1999, exceeded one million hits during several one-month periods. We have seen only the beginnings of an effective communication system devoted to young children.

Demonstration

One strategy that has been often used to improve program quality is to identify outstanding programs, establish them as demonstration centers, and then urge other professionals to observe and emulate what is happening in those centers or programs that could be transferred to their own program. One of the oldest demonstration efforts in early childhood has been the Handicapped Children Early Education Program (HCEEP) that funded a variety of centers across the country illustrating high-quality program elements for young children with disabilities (DeWeerd, 1974). Those who direct or work in such demonstration programs are often valuable consultants to similar programs. Some demonstration centers can also play the role of a technical assistance center or inservice training unit. The High Scope Educational Research Foundation (<http://www.highscope.org>) is another rare example of a demonstration program in early childhood. There has been virtually no funding for demonstration programs outside those that focus upon "at-risk" populations.

Data Systems

One of the key elements in an effective early childhood infrastructure for a state would be the design of a data system for the systematic collection of information related to early childhood programs. It is often taken for granted by policy makers that information about various programs should be available automatically. So, when policy makers ask for the number of children cared for at home, or in family day care, or by relatives, they react with great surprise when they are told that no one knows the answer to those questions, or where to go to find the answers.

Since knowledge of the number of children in need of various services is critical to determining the projected cost of a program or services, it is a key element in comprehensive planning. A data system can also be useful to answer any number of questions, such as "Are minority children with special needs being served in the same proportion as their demographic proportion in the state?" (Hebbeler, 1993).

Federal agencies have been aware of the need for such basic data for their own planning purposes. The National Center for Educational Statistics has added an early childhood education segment to its reporting (<http://nces.ed.gov/fastfacts/index.asp>), and the National Child Care Information Center State Profiles (<http://nccic.org/cctopics/stats.html>) have been helpful in gathering statistics on personnel status and development. Still, these federal data sources must rely on the capabilities of the states to collect accurate information from local communities. Systems that deal with the prekindergarten data confront more problems than systems that deal with school-age children who can be conveniently found in one place - the schools. There is the additional problem of obtaining unduplicated counts of children receiving multiple services, and the problem of "confidentiality"

because some mental health agencies are not able to share their files with other agencies.

While progress has been made in building some data systems at the federal level, the same cannot be said of data systems at state and local levels. A number of states have begun efforts to develop comprehensive data systems. It remains to be seen if such systems will receive the consistent support needed for their maintenance.

An interdisciplinary committee, with help from consultants with demonstrated expertise in data systems, will likely be necessary to carry out the initial design and implementation of a comprehensive early care and education data system. The persons who will have to provide the data for the system (early care and early education personnel) should have input into the design of the system.

It should not be imagined that the sizable technical problems involved in operating and upgrading data systems are the only difficulties facing those wishing to establish an early childhood data system. There are policy makers who do not wish to know some of the data that would come forth from such a data system because knowing such data (e.g., the number of children not being served) may force action that will result in expenditures that the policy maker might well wish not to make. The principle of deniability ("I never knew that things were in such bad shape!") is well established in the political realm, and a well-functioning data system may prevent the exercise of such denial.

Comprehensive Planning

One of the key aspects of an infrastructure is the ability to do comprehensive statewide planning and to be able to allocate resources over time and in a systematic manner to more easily reach the goals of the program. Such planning should bring together all of the various players and stakeholders in the early childhood domain; Head Start, child care, public schools, early intervention, parents, and citizens should all be represented in such a planning effort. Part of the plan would be devoted to determining the degree to which various other elements of the infrastructure (e.g., personnel preparation) should be receiving support. The Smart Start Program (<http://www.smartstart-nc.org/>) in North Carolina represents a multidisciplinary statewide effort to bring comprehensive planning to the delivery of services to all children and families in need from birth to school age (Bryant et al., 1999).

There is widespread recognition among the states of the need to develop comprehensive plans so that early childhood programs have some degree of continuity and stability in the face of widely varied state income from one year to the next. The budget problems of allocating resources often result in states not being able to make final budget decisions until late summer. This timing causes additional problems for the early childhood leaders who often do not know what resources they will have until a few weeks before they must start a new school year. So there is little argument that multiyear planning is needed - the issue is how to carry it out within the existing political system and how to coordinate the various support elements.

One dramatic case for the need for collaboration involves the transition of young children with disabilities from Part C of IDEA (birth to 3) to Part B of IDEA (3 to 5 years). In a number of states, different agencies have the responsibilities for each of these developmental periods. Written interagency agreements have been developed to ease the transition (Wischnowski, Fowler, & McCollum, in press). Such agreements need the full cooperation and authority of the concerned agencies, plus a strong desire to implement the agreement. Otherwise, it becomes only another document ignored in favor of the status quo, turf battles, personal status, and other impediments to useful change (Harbin & McNulty, 1990).

Coordination of Support Elements

It is not enough to have all of these components present in a particular state; they must be linked together for maximum payoff. Yet, there are enormous barriers to be overcome because of the "parallel play" that the key agencies are engaging in, often not knowing what other agencies are doing, but each convinced of their own legitimate role in early childhood. Head Start is organized and funded at the federal level. Child care is governed largely at the state level with significant funding from the federal government. Prekindergarten programs in the schools are funded and governed through some combination of federal programs (Title 1), state special initiatives, and local government. Services for children with disabilities receive a major amount of oversight through federal legislation and regulation, but they are operated mostly through locally administered programs. With these overlapping responsibilities, providers and policy makers often find themselves making decisions that can be undone by the actions of others, unaware of the broad consequences of their own actions (Fowler, Donegan, Lueke, Hadden, & Phillips, in press). Currently, one could truthfully say no one governs or coordinates the early childhood services in the United States (Clifford, 1995).

The needed collaboration will take place under admittedly painful conditions so that there needs to be strong motivation to take this painful step. Gray and Hay (1987) believe that successful implementation of interorganizational consensus relies upon the perceived legitimacy of the project involved and the ability to include all key stakeholders. What type of interorganizational arrangement is made is dependent upon the "exchange relations" between groups (Cook, 1997). Two reasons for such collaborative efforts to be tried are specialization and scarcity. Specialization may mean that an agency representing the health field may be needed in comprehensive planning because of its special knowledge and expertise in that field. The issue of scarcity comes into play when interorganizational cooperation can have the advantage of creating economies of scale. The manifest shortages of personnel call for collaboration among higher education, community colleges, the providers, and supporting agencies.

Conflict among agencies can be expected because of the stress that inevitably occurs in a domain where scarce resources are to be divided. The actual study of conflict between agencies, however, has been quite limited; therefore, there needs to be an analysis of the advantages and disadvantages of conflict for a given agency (Di Stefano, 1984). Alexander (1995) has

developed a series of examples of coordination between organizations, stressing the positive aspects of the links between elements rather than the overall properties of systems.

Unfortunately for those seeking simple answers to complex questions, our understanding of the development of young children becomes more and more complicated, requiring the attention of many diverse disciplines. The young child is swimming in a cultural sea that will shape that child's future reaction to events, and that shaping process never stops. Elder (1998) pointed out how individuals are shaped by their historical context (those who lived in the Great Depression or World War II, for example). So it is not just the child alone, or the child and the family alone, but the entire cultural environment that, in some manner, determines the child's reaction to school and education (Bronfenbrenner, 1989).

If we accept the persuasiveness of the arguments for a coordinated support infrastructure for young children, then we face another issue: "Why hasn't such an infrastructure been put into place?" In other words, why don't we, as professionals, do what we know we should do? The answer to this question is considerably more complex than ignorance or malfeasance. This puzzle is at the heart of why change is difficult, and why the status quo has so much power. A careful review of the array of barriers to change would seem to be helpful in answering the key question above.

Barriers to Policy Implementation

In some respects, change appears to come easily to Americans - particularly when they adopt a new technology, such as the computer or VCR. Yet, when one tries, deliberately, to create change in services to citizens through policy shifts, there are often many barriers to overcome. For example, Gray and Hay (1987) propose that "unless other compelling incentives exist, powerful stakeholders will resist collaborative interventions so that they can preserve their individual control over the domain" (p. 99).

Figure 1 provides a summary of various types of barriers that the implementation of new policies must overcome: institutional, psychological, sociological, economic, political, and geographic barriers. In the case of programs in early childhood, there are a variety of potential barriers at work.

There are few policies that do not find some barriers that stand in the way of implementation. Success in policy implementation often depends on knowing the nature of these barriers, how they interact, and how they can be portrayed, so that an effective strategy can be devised to overcome them.

Institutional

These barriers arise when the proposed policy conflicts with the current operation of established social and political institutions. A call for interagency coordination might create difficulties in blending the existing policies and operations across health, social services, and educational agencies. If a lead agency is identified to carry out the policy, is that agency given sufficient authority and resources?

Psychological

A proposed policy can come into conflict with deeply held personal beliefs of clients, professionals, or leaders who must implement the policy. Perhaps some persons resent the fact that they were not consulted before the policy was established. Any time someone loses authority or status, there can be personal resistance.

Sociological

Sometimes the new policy runs afoul of established mores or cultural values of subgroups within the society. For example, it may be traditional in some cultural subgroups for family members to show deference to those in authority (e.g., physicians or agency heads). The notion of family empowerment might be a difficult one for them to entertain.

Economic

Often, the promise of resources to carry out a program is not fulfilled, not because of deviousness, but because of the multitude of issues to be met and the limited financial resources at the state or federal level.

Political

Some programs become identified with one or the other political party, and such programs become hostage when the opposing political party comes into power. There is a periodic overturn of political leaders through retirement or elections - changes that can cause disjunction in the support or understanding of the program on the part of political leaders.

Geographic

The delivery of services to rural and inner-city areas has long plagued those who have tried to provide comprehensive health and social services. Personnel resources tend to remain in large- or middle-sized urban areas, causing substantial difficulties in covering outlying areas.

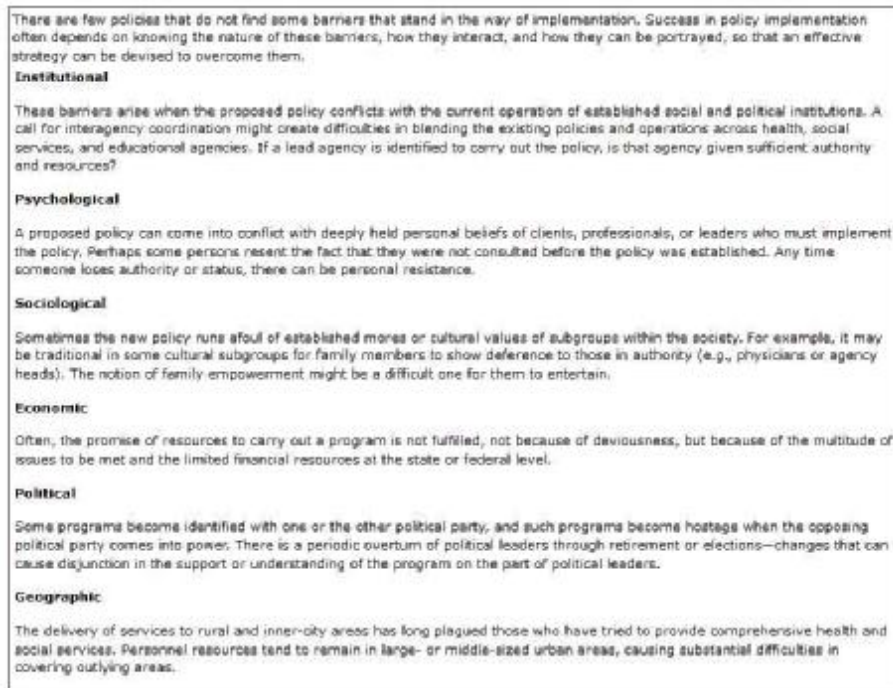


Figure 1. Barriers to policy implementation.
Adapted from: Haskins, R., & Gallagher, J. (1981).
Models for analysis of social policy: An introduction (pp. 68-74). Norwood, NJ: Ablex.

Institutional Barriers

Institutional barriers include the separate structures that have already been established to carry out special programs to meet the diverse responsibilities of Head Start, child care, public schools, and early intervention, and which now exist apart from each other (Fullan, 1993). It is a challenge to blend these separate structures. None of these separate elements of early childhood services has a comprehensive structure, but each has some elements of a total structure in place. There are, in addition, separate professional organizations tied to various governmental agencies, often in separate departments of government. Each may be tied, in turn, to some part of the system of higher education.

Psychological Barriers

Psychological barriers can hinder policy development or change. These barriers are unique to a particular individual and can hardly ever be predicted. However, some policy change can run counter to the interests of a

senior administrator who has been accustomed to doing things in a particular fashion for years, if not decades. Regardless of the merits of new ideas, some resistance to change can be expected.

Similarly, if we have an agency head who thinks that the changes are going to eclipse her own influence in the professional domains of her state, some considerable time and effort may be needed to try to mollify or reduce the anxiety of individuals who see the change as affecting them personally in a negative fashion.

Sociological Barriers

Sociological barriers can be some of the most frustrating to all concerned. The diversity of American society means that there are many subgroups that may not completely share the mainstream idea of the American dream and can certainly have child-rearing ideas that differ from the mainstream. When these child-rearing differences are complicated by the presence of a child with disabilities, the opportunity for misunderstandings and different views are many. Even if there is solid mainstream support for some policies, they can run counter to the values of a particular subgroup and create substantial resistance to a new policy initiative (Harry, 1992).

While it is possible to establish policies through majority rule, there may be in the community a substantial and active minority group, whose members resent the fact that their interests have been overridden. They can, at the local level, twist and bend the general policies to fit their own group's needs. Cultural barriers constitute one reason why the same policy appears to be implemented differently in different communities.

Economic Barriers

Many of the economic barriers to policy implementation are obvious. Early childhood personnel are being paid at a scandalously low level relative to the responsibilities that they carry. The American public is not yet sure whether they should assume financial responsibility for preschool children, as they have for older children in public schools. Every suggestion for change carries with it a price tag that the general public or its representatives have to assume if this change is to be accomplished. While the public has been willing to invest in programs for children with special needs or problems, most policy makers have resisted support for universal programs for early childhood.

A recent report has identified over \$7 billion in state and federal money being spent on child care and early education services (Mitchell, Stoney, & Dichter, 1997). That amount is surely increasing every year, but it is still far short of the needs of the target population of children. A recent National Academy of Sciences report estimates that we spend one-quarter the amount on children birth to 5, on average, as we spend on children 6 to 17, on average (Ladd & Hansen, 1999). A variety of sales taxes, property taxes, state income taxes, tax credits, and state lotteries are being used to generate additional income at the state level. Increases in federal programs such as Head Start and programs that serve young children with disabilities add to the available funds.

Political Barriers

Political barriers can appear when early childhood programs become too closely associated with a particular political leader who retires, or whose political party loses an election, so that the opposition party downgrades the program when it comes into political power. There are definitive time constraints in the political arena marked by elections, legislative calendars, and retirement, for example, so that meaningful steps toward change have to be taken at particular points in time. The politics of change also mean that a continued program of education for decision makers has to be conducted to orient the new entrants to the political scene to the issues at stake. As long as many members of the public see early care and education as a service to parents rather than as developmental enhancement for the child, they will be unlikely to pick up the cost of comprehensive programs.

The positive role that can be played by the media to enhance interest in early childhood is illustrated by such efforts as the "I Am Your Child" campaign, led by actor and producer Rob Reiner, and the recent efforts to disseminate brain research, which was well covered by the national press. Since many public decision makers get their information about early childhood through the media, attempts like those noted above appear to have made a positive difference in how the building of an early childhood infrastructure has been perceived.

Geographic Barriers

The geographic barriers to policy implementation have remained relatively constant over many decades. The delivery of services to children with special needs has been hindered by the logistics of distance or accessibility. Distance can keep the professionals who work in rural areas from coming into easy contact with each other and so limits the collaborative work that might otherwise be organized for the benefit of the child with special needs. But distance is not the only dimension to the barrier. Many professionals are less likely to wish to work in a rural area or in the "inner city," and the areas themselves are often poor, limiting the amount of specialized help that can be made available. Even in the relatively well-supported areas of serving young children with special needs, a half-century has gone by without a solution to the problem of providing sufficient services to rural areas or inner-city areas. Geographical barriers remain a persistent problem (Kirk, Gallagher, & Anastasiow, 2000).

Power of the Status Quo

There has not been much written about the status quo as a force, but it obviously is one of the more significant barriers in policy initiation or change. In any people-serving operation (e.g., health, education, and social work), there are a number of professionals who have become used to carrying out their jobs in certain ways. To ask the pediatrician to give up the use of her standard blood pressure equipment, or the psychologist to give up his intelligence tests, or to ask the teacher to "team teach" with another is asking a lot, even if the changes might be clearly beneficial to those being served.

Changing to new procedures always takes more psychic and physical energy than maintaining the status quo, and that fact alone can cause a lack of enthusiasm for new policy (Fullan, 1993). Resistance to new methods and procedures is routine, and there has to be a very powerful reason for changes to be instituted in order for people to overcome that resistance. Psychological inertia can be as powerful as physical inertia.

In order for change to take place, we must also overcome inertia in the form of a quasi-stationary equilibrium that is the main impediment to change (Schein, 1996). Fortunately, such a change in equilibrium seems to be upon us. Weick and Quinn (1999) point out that "to understand organizational change one must first understand organizational inertia, its content, its tenacity, its interdependencies" (p. 382). They separate episodic change from continuous change and believe that there has to be a serious lack of equilibrium to justify and sustain episodic change. Such a lack of equilibrium would seem to be that the majority of mothers with children under 5 years are in the workforce and families require some type of high-quality child care.

Resistance to change and the maintenance of equilibrium is heightened by what has been referred to as deep structure (Gersick, 1991). Deep structure refers to a series of choices made and procedures adopted while establishing a system. A set of basic activity patterns has evolved to maintain the system's existence. Together, the patterns make up what might be called "the rules of the game." Having made these choices over time in such a structure as the child care system, for example, one would be extremely loathe to leave them for some alternative path of action, hence the equilibrium-maintaining nature of the deep structure.

One reason that is often given for change is that the old ways or processes have never proven their usefulness and that the newer approaches are more effective and efficient. The new ways will improve our performance and make us seem modern and up to date in our professional work (Zigler, Kagan, & Hall, 1996). This side of the argument is the "carrot side." The "stick" side of the argument is that you may not be allowed to continue the status quo in any event. Your very job, or professional role, can be considered outdated and could be threatened with replacement. At the very least, if you don't change, the funds that you have counted on may disappear. Some combination of the "carrot and stick" approach may be necessary to convince people who are being asked to change to accede to these requests.

It should be clear that change in early care and education policy will require a change in attitude on the part of the public who must pay the bill. This barrier is not a reason for rejecting this systems-building option but rather a reason for a call for a comprehensive campaign to highlight the long-range benefits of such a system (e.g., fewer referrals to special education, fewer grade retentions).

What Next?

Each of these infrastructure elements is in place somewhere. There are research centers and regional education laboratories already established; major technical assistance systems are present in Head Start and in

programs for children with disabilities (NEC*TAS). On-site personnel preparation is being handled through a variety of groups such as state agencies, resource and referral agencies, and community colleges. There are communication efforts through a variety of national clearinghouses. Long-range planning efforts have begun in many states. We now are faced with reorganizing these efforts in the interests of maximum payoff for young children and families. The virtues of all of these support system components have been recognized. What we need now is sufficient numbers of these efforts at the state level to ensure some payoff at the local or center level.

With all these barriers and problems, it seems wondrous that some planned change takes place at all. It is clear that we can no longer accept the rationale that "It just make sense to change." It might make sense in terms of some logical argument, but we have to remember that we are dealing with "self-interest," one of the most powerful of human motives. If the new policy offends the values of individuals or communities, or just threatens the status quo, then the proponents of change are likely to have a fight on their hands.

Another point made by those who study the process of change is that there are various stages that must be traversed in order for change to take place. Prochaska, DiClemente, and Norcross (1992) describe four stages - precontemplation, contemplation, action, and maintenance - and have noted that many persons flow from one stage to another. Even when persons reach the action stage, they often relapse and change back to previous habits three or four times before they maintain the newer sequence. So there is a spiral pattern of contemplation, action, and relapse before reaching the maintenance stage.

Policies for Building Infrastructures

There has been enough sad experience to suggest that the laissez-faire approach as a means to cope with implementation barriers does not work. The opposition will not go away, nor are they likely to "see the light" without some definitive action being taken. One interesting exercise would be to pretend that one was starting from scratch in building an educational infrastructure instead of trying to paste together already existing entities with their own histories and mandates to be considered. Under such circumstances, it would be relatively easy to assign authority for different roles in the system with personnel preparation assigned in one direction, demonstration in another, and the responsibility for communication assigned to a third.

But existing agencies are likely to have components of all of these roles already active within their organizations because the absence of an overarching infrastructure has caused them to fill in the gaps themselves. For example, a large number of agencies dealing with early childhood (e.g., Head Start, programs that deal with child care or children with disabilities, and Title 1 for young disadvantaged students) all have personnel preparation activities because of the universally recognized importance of high-quality and well-prepared staff. Now the task is to see how all of these efforts can be synthesized or coordinated to a central purpose for the benefit of young children and their families.

If we accept the importance of the support infrastructure and the powerful barriers standing in the way of change, then our task is to design a public campaign that would encourage states to consider such an infrastructure. The many different contexts and forces at work in different states make it impossible to provide a simple recipe for such actions, but there would seem to be some general strategies that should be considered.

Identify and Cultivate Power Sources

We need to identify and cultivate various powerful political sources in the states that could be supporters of the infrastructure concept. Such a power source could be a governor, or a key state legislator, but it could also include professional organizations and business leaders who are convinced of the importance of high-quality early care and education. As noted earlier, it would be desirable to have bipartisan political support to prevent the early childhood effort from becoming a political football or a pawn in the inevitable conflict between the two major political parties. An early declaration of the intent to be bipartisan could be helpful in keeping the hostility or anxiety in check.

Establish Planning Structures

While many states have found it useful to organize interagency or multidisciplinary planning groups, few of these groups have been given a mandate that would allow them to pursue the support system infrastructure concept. Some form of such a mandate needs to be given by one or another of the power sources. Once given such authority, this planning group, representing the various stakeholders in the early childhood field (including parents), could prepare a multiyear development plan as the basis for a policy initiative for creating a support infrastructure.

An example of such a technical planning group comes from the National Education Goals Panel (<http://www.negp.gov/>) (1997), which addressed the subject of what would be necessary for each child to be able to enter kindergarten "ready to learn," the first of the National Education Goals. The panel believed that attention should be applied to five major developmental domains: physical well-being and motor development, social and emotional development, approaches toward learning, language usage, and cognition and general knowledge. The panel recognized the importance of a proactive strategy to enhance performance in all of these domains:

Attention is needed in both policy and practice in order to recognize that preparing children for school means helping them become healthy, adjusted, curious and expressive, as well as knowledgeable. . . . The best way to reach high standards may be to attend to children's general well-being and then provide learning environments and experiences rich in opportunities to explore, rather than to provide earlier formal academic instruction. (National Education Goals Panel, 1997, p. 35)

In order to promote all five of these dimensions, the panel recognized the importance of coordinating human service delivery among health, education, and other social service agencies at the local, state, and federal levels. As the panel noted, "It is not simply the development of new policies

that must be accorded attention; it is the development of new structures and new public will" (p. 34).

Mount a Media Initiative

The general public has a poorly developed understanding of the infrastructure concept, and there needs to be a long-range media campaign mounted by a variety of individuals and organizations committed to this idea. Research documenting the impact of infrastructure on outcomes in young children is needed. Reports of exemplary program efforts in support systems and clear examples of how the system would work are also required.

In a more targeted fashion, the media effort should also focus on decision makers who would be responsible for creating and implementing the system, because many decision makers may have an incomplete appreciation of the value of a support system for early childhood. They probably already are aware of the costs of such components and need to see the advantages more clearly.

Involve Professional Organizations

A potentially powerful but little used resource are the state professional organizations, some of whom may be adjuncts to national organizations such as the Association for Supervision and Curriculum Development (ASCD), National Association for the Education of Young Children (NAEYC), Council for Exceptional Children (CEC), National Education Association (NEA), and American Federation of Teachers (AFT). These organizations can provide continuity for the planning effort. They have often been used only to convene professionals from their own discipline, but a major effort to win such organizations over early could generate a purpose and direction for the state organization agenda that they often lack.

The recent president of NAEYC (Clifford, 1997) has urged his organization to move on these issues:

NAEYC has an obligation to deal with these issues. As the largest organization representing early childhood professionals, we must face up to the issues which directly affect our current and future membership. We must develop new capacities to address the public policy issues. We must craft effective means to provide assistance to affiliates - particularly those at the state level - as key decisions are devolved to state and local authorities, to enable them to effectively advocate for quality services and equitable and forward thinking decisions affecting early childhood professionals. (Clifford, 1997)

Be Realistic about Time

Given all that would have to be done, any expectation for a quick and glorious victory for our efforts would have to be muted. It is more realistic to think in 5-year blocks of time during which a series of activities would be taking place to build the necessary groundwork.

Financing the Infrastructure

The establishment of these support system components is much more economical than the "across-the-board" increases in service delivery

strategies (e.g., raising teacher salaries) or extending services and should be attractive to policy makers.

As the complexity of our social and economic enterprises becomes more evident, the need to develop system-type answers will hopefully become more acceptable. The 21st century is likely to be filled with structures designed to cope with the multiple interactions of various social forces or influences. The most creative act of the professional and the professional community may be to design structures, such as these support systems, that will help our complex society work more effectively to provide needed services for young children and their families and to use our understanding of the change process to see the system implemented.

Earmarking

One of the financial strategies used by other programs to insure that certain things happen is to earmark certain funds to make sure that a particular proportion of resources will go to that interest. Head Start funds have been earmarked in the sense that 10% or more of the students are mandated to be children with disabilities. Another example is the Child Care and Development block grant where 4% of the funds are set aside for "quality expenditures" (Personal Responsibility and Work Opportunity Reconciliation Act of 1996, PL 104-193).

It is necessary to earmark such funds for the infrastructure because when funds become tight, the direct service money is politically protected, while the cuts are often made in the less politically sensitive infrastructure areas such as personnel preparation or research. Over time, this cutting results in a shrinking proportion of funds devoted to infrastructure. The earmarking in this case could be a sum of money that becomes a percentage of the total allocations. How these sums are allocated among the various components can be decided in individual states with help by an advisory committee in the state government that would be guided by the comprehensive state plan.

Kagan and Cohen (1997) have addressed the issue of infrastructure in one of their recommendations in *Not by Chance*. They state, "Ten percent of all public early care and education funds will be invested directly in the infrastructure" (p. 35). They continue:

As public investments in early care and education increase, a larger percentage of government funding - we estimate at least 10 percent - needs to be invested directly into building and maintaining the infrastructure, including support for resource and referral agencies; parent information and engagement; data collection, planning, governance, and evaluation; practitioner professional development and licensing, enforcement, and improvement; program accreditation; and other quality improvement activities. (p. 36)

Subsidies

We already have many examples of governmental subsidies that the public willingly pays for, expenditures that are in the public interest. Transportation is a major example. Mass transit cannot pay for itself from the fares charged to individual passengers. Public subsidies are required to bring the fares to a reasonable level. We can look at child care and early

education similarly. Parents should pay fees, but these fees should be at an affordable level. This subsidy would help us cope with Morgan's dilemma of early childhood care: low teacher salaries, low educational preparation of personnel, and high parental cost (Morgan, 1996).

These subsidies would represent a major increment in what we are spending on children. Establishing such subsidies will require strong and persistent political and professional leadership. It may help to point out that we now spend \$6 to \$7 on the elderly for every dollar we spend on young people.

Wishing Will Not Make It So

There is no linear, straight-line path from where we are now to where we want to go in terms of building a viable support system or infrastructure for early childhood. One of the advantages of these ideas for a comprehensive support system is that many stakeholders can see how such a support system will benefit their programs, if such a system is established in the right fashion. Nevertheless, the barriers that are predictably in the way of the development or coordination of such a system, plus the power of the status quo, guarantee that a long and sustained effort will be needed to bring about an infrastructure for early childhood education.

One thing is certain - infrastructures such as those described here do not happen by accident. They have to be constructed. We cannot substitute wishful thinking for action. If the infrastructure for young children eventually emerges, it will be because of concerted and prolonged effort by many persons who believe in this concept.

We have reported on a variety of initiatives being taken that will help build the infrastructure described here. These initiatives represent desirable steps on a long journey to a comprehensive service system for young children and their families.

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Language Development and Science Inquiry: The Head Start on Science and Communication Program

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Abstract

There are ongoing discussions about the best way to teach science to young children during the preschool and early elementary school years. What practice is most likely to contribute to children's development and learning while cultivating exploration, questioning skills, and revision of thinking to accommodate new ideas in science? The Head Start on Science and Communication (HSSC) Program is based on collaborative research from the fields of science education and language development. Program objectives have been aligned with the curriculum and are based on the national science standards for young children. The HSSC Program evolved over four years of research and implementation at schools in Pennsylvania, New Jersey, and Washington, DC. The initial phase of the program included input from parents, teachers, and teaching assistants to help develop lessons and shape the inquiry-based strategies for young children learning about life science, earth science, and physical science. The second phase of the program incorporated curriculum materials and investigative experiments to promote inquiry-based, hands-on science as a vehicle for promoting young children's language development. Children learned to match, discriminate, categorize, sequence, and associate information as they worked with peers to understand science concepts, relate facts, and solve scientific problems. As a result of participating in the HSSC Program, teachers employed collaborative learning strategies, engaging in small-group problem-solving teams with verbal interactions among teachers and students. Outcomes also included positive changes in teachers' questioning strategies. Teachers became proficient in asking more open-ended questions at increasing levels of difficulty instead of basic factual and yes-no questions. Preliminary data from a study of 85 first-grade students who engaged in a series of 12 science experiments indicated that prior to the program, they answered an average of 58% of the factual-type questions correctly and 15% of the application-type questions correctly. After learning about topics such as earth surfaces, minerals, changing colors, seeds, and plants, these children answered the factual-type questions with 96% accuracy and the application-type questions with 92% accuracy, indicating a significant gain in knowledge beyond the $p < .05$ level for both types of questions. Students improved their knowledge of science concepts along with their ability to answer questions requiring higher-level cognitive skills. Teachers noted students' improved knowledge of science and enhanced language development.

Introduction

There are ongoing discussions about the best way to teach science to young children during the preschool and early elementary school years (Bell & Gilbert, 1996). What practices are most likely to contribute to children's development and learning is the question that parents, teachers, and the research communities want answered. We know that young children's thinking is expanded through their cognitive development as well as their personal experiences. Children must explore, ask questions, and revise their thinking to accommodate new ideas (Mundry & Loucks-Horsley, 1999).

This article discusses a model that fosters science learning through a systematic approach to understanding language at increasingly higher levels of abstraction by using questioning skills to elicit factual and application information. Language skills are supported with hands-on, visually engaging materials for learning about life science, earth science, and physical science during the primary grades. At the Mid-Atlantic Laboratory for Student Success headquartered at Temple University Center for Research in Human Development and Education, science educators and speech-language specialists have developed a science curriculum that promotes the content of and process for learning about science in contexts that young children can experience and understand.

Instructional Methods

Most early childhood programs incorporate both explicit teacher-led activities, in which the students follow the teacher's directives; and exploratory, teacher-facilitated activities, in which students guide instruction based on their interests and curiosity (Fradd & Lee, 1999). These two practices stem from different theories and philosophies of how young children learn and the role adults play in the learning process. Explicit curriculum models for preschool are based upon behavioral learning principles. This theory is linked to learning theories in which cognitive competence is assumed to be transmitted through the process of repetition and reinforcement (Stipek & Byler, 1997). The explicit models use a highly structured teaching approach for acquiring academic skills. The skills emphasized tend to be those assessed by general intelligence and achievement tests. Teachers may lead small groups of children in structured question-and-answer lessons and drills. Teachers also spend much time correcting errors to keep children from learning incorrect answers. Workbooks and paper/pencil-oriented activities are generally included in the learning process (Schweinhart & Weikart, 1997).

The other approach incorporates the exploratory model of learning and suggests that children construct their knowledge by confronting and solving problems through direct experience and use of manipulative objects (Stipek & Byler, 1997). The goal of the exploratory teaching model is to create an environment in which children may explore, learn, and develop when involved with naturally interesting materials and events. In such a setting, there are no structured responses. Rather, activities lend themselves to creativity and exploration (Stipek & Byler, 1997). In exploratory models, the teacher's role is to serve as a facilitator for the children by providing

them with opportunities to engage in activities and interact with their peers. Teachers who are unfamiliar with the "facilitator role" may be uncomfortable and feel as if they are not teaching according to the curriculum.

Long-term and short-term studies have looked at the different outcomes of these two approaches toward early childhood education and their impact on cognitive and social-emotional development (Becker & Gersten, 1982; DeVries, 1991; Gersten, 1986; Schweinhart, 1997; Schweinhart & Weikart, 1997).

Some researchers believe the explicit-directed type of teaching is management driven. Cuban says, "The basic imperative of elementary schooling is 'to manage large numbers of students who are forced to attend school and absorb certain knowledge in an orderly fashion'" (as cited in Goldstein, 1997, p. 5). Cuban explains that this demand has led to the development of a curriculum approach that is linked directly to the challenge of managing children. Other researchers believe this type of curriculum is superior to exploratory, child-centered models, especially for children of low-income families. Delpit (1995) maintains that the explicit-directed type of curriculum values basic skills over creative thinking and is necessary because of the value society places on highly structured skills-oriented programs. Schweinhart and Weikart (1997) state that explicit, teacher-directed instruction may lead to a temporary improvement in academic performance at the cost of missed opportunities for long-term growth in personal and social behavior. They support the use of an exploratory, child-centered curriculum to further develop social responsibility and enhance interpersonal skills. Additional research reports that children in exploratory, child-centered programs display better language development and verbal skills (Dunn & Kontos, 1997).

Both approaches have value in educating young children. Some of the questions that have been asked include the following: Which is better for the teacher? Which is better for children in developing cognitive competence? and What curriculum models are best for enhancing the social-emotional development of young children? We know that students can benefit from both the explicit and exploratory approaches. "Instead of viewing these approaches as opposing camps, they could be conceptualized as complementary opportunities for teachers to move between perspectives" (Fradd & Lee, 1999, p. 16).

One of the goals of this paper is to provide an example of an effective program for developing science knowledge and language skills with young children that incorporates both explicit, teacher-directed methods and exploratory, teacher-facilitated methods.

Head Start on Science and Communication (HSSC) is the early science program that has been implemented in classrooms that use the Adaptive Learning Environment Model (ALEM) (Wang, 1992), a cornerstone of the Community for Learning (CFL) comprehensive school reform model. This instructional program provides the infrastructure for blending exploratory and explicit learning to support children's unique abilities and individual differences. The program has been highly influenced by over two decades of

research and broad, field-based implementation of innovative school programs (Wang, Haertel, & Walberg, 1995). CFL "draws itself from the field-based implementation of an innovative instructional program that focuses on school organization and instructional delivery in ways that are responsive to the development and learning needs of the individual child, the research base on fostering educational resilience of children and the youth beset by multiple co-occurring risks, and the forging of functional connections among school, family, and community resources in coordinated ways to significantly improve the capacity for the development and education of children and youth" (Wang, 1998, p. 10).

Developmentally Appropriate Practices

In connection with the instructional model, the National Association for the Education of Young Children (NAEYC) recommends that developmentally appropriate practices be adopted. Developmentally appropriate practices (DAP) are not a curriculum; however, they provide standards for identifying high-quality early childhood education programs. DAP emphasizes the treatment of children as individuals with the ability to make choices about their educational experience (Bredekamp & Copple, 1997).

The HSSC Program has implemented NAEYC's suggestions in the classroom to meet children's individual needs. These recommendations include, but are not limited to, (1) ensuring that classrooms function as caring communities so they can help children learn how to establish positive and constructive relationships with adults and other children; (2) providing opportunities for the children to accomplish meaningful tasks and experiences in which they can succeed most of the time; and (3) preparing a learning environment that fosters children's initiative, active exploration of materials, and sustained engagement with other children, adults, and activities. Further recommendations include planning a variety of concrete learning experiences that are relevant to children and providing opportunities for children to plan and make choices about their own activities from a variety of learning centers.

Appropriate opportunities for learning are further supported by providing an environment that cultivates receptive and expressive language and cognitive development. As preschoolers proceed through stages of language development and cognitive growth, they gain skills in acquiring vocabulary, understanding simple stories, following directions of increasing complexity, and learning about causal relations. Their expressive skills expand to use grammatically appropriate sentences, and they learn to exchange ideas in discussion, discuss why something happened, ask questions related to a topic, and retell a simple story by kindergarten age. As young children expand their vocabulary, they begin to differentiate likeness and differences and to match, discriminate, and categorize objects and events through paired comparisons. Such emergent skills are precursors to later reading and writing. As young children gradually refine their visual perception and explore their environment, they learn to sequence events in logical order. They begin to make associations and can compare objects on the basis of different attributes. These abilities lead to higher-level skills of planning,

making judgments, and solving problems. Throughout this time, children learn that their communication has an effect on others and on their own ability to get what they want (McLean & McLean, 1999).

Classroom Dynamics

The manner in which the teacher structures learning opportunities and the methods used to foster interaction among students while learning are critical to supporting language and cognitive development. Howes and Phillipsen (1998), in their study on the effects of preschool interaction, found that low levels of child-teacher closeness when a child is 4 years old lead to social withdrawal in second grade and that prosocial ratings in second grade were best predicted by preschool classrooms that were high in children spending time interacting with peers. This finding supports the recommendation of NAEYC that teachers serve as facilitators to children's self-initiated activities. Teachers can not only provide instruction but also provide opportunities for children to explore concrete materials and interact with peers (Bredenkamp & Copple, 1997). Teachers can circulate around the room responding to students' requests, giving individual instruction, or offering feedback and reinforcement (Wang, 1992).

Students' internal motivation to succeed is further fostered by a classroom environment that incorporates cooperative learning activities. In such classrooms, students tend to be less focused on how they are doing relative to their peers and are more focused on learning for its own sake. According to Nicholls (1990), students in classrooms with a cooperative learning structure focus more on how to accomplish tasks, and they view making mistakes as part of a process towards learning. "Depending on the type of classroom structure teachers choose, they are communicating a view of success or failure to their students that can have a critical impact on children's beliefs" (Bempechat, 2000, p. 12).

A Best Practice Model

In deciding how to encourage students to explore the nature and meaning of science while developing their comprehension and expression, science educators and language development specialists have developed a curriculum that is both explicit and exploratory in nature, taking the best qualities of each. The curriculum is based on the (1) American Association for the Advancement of Science Project 2061 science benchmarks (AAAS, 1993); (2) developmentally appropriate practices; and (3) language skills for classroom communication (Farber & Klein, 1999).

The developers of the HSSC Program have based their thinking on a few guiding principles. Young children have a natural tendency to explore. Children's daily playtime activities engage them in "science." Science education in school unites cognitive development and children's prior knowledge and experience with intuitive scientific theories to formulate new ideas. As they develop explanations about the world around them, they are learning broad scientific concepts. While they are discovering their world, they are questioning and investigating. Rather than looking at isolated science concepts, science for the early childhood student is an introduction to the "big picture." Newer approaches also emphasize learning that

maximizes students' individual competencies. Using an interactive process to enhance students' questioning abilities (Stone, 1994), the HSSC Program encourages social interaction, discourse, and questioning during science lessons. This interactive, analytic approach tends to improve kindergarten children's planning and problem-solving skills. Students are asked to describe and communicate their ideas as they make sense of their own learning, drawing from prior knowledge and asking questions to acquire information. This interactive inquiry-based perspective is supported by the National Science Education Standards (National Academy of Sciences, 1996).

Program Description

The Head Start on Science and Communication (HSSC) Program was initially conceived to unite parents and teachers to promote current and future success in science for children in preschool, kindergarten, and first grade. The HSSC Program emphasizes the development of children's language skills through an explicit, teacher-directed approach and an exploratory, child-centered approach to acquiring science knowledge. The program aims to achieve three very specific goals:

- broadening participants' science knowledge and conceptions around three science domains: life science, earth science, and physical science;

- enhancing age-appropriate abilities through scientific inquiry for observing, hypothesizing, predicting, investigating, interpreting, and drawing conclusions; and

- integrating science with communication to recall, identify change, generalize, analyze, judge, and solve problems.

The two phases of the HSSC Program are described below. Phase I included outreach and planning with parents and teachers in the community; phase II was an instructional scaling-up attempt to incorporate specific science experiments in classrooms.

Phase I

The participants in phase I of the study represented Head Start programs from 18 schools in Philadelphia and New Jersey. Participants included 18 teachers, 11 classroom assistants, and 10 parents, ranging from 19 to 53 years of age, and included three ethnic groups: African American (68%), Caucasian (29%), and Latino (3%). Eighty-five percent of the Head Start programs represented were based in large urban settings, and 15% were based in suburban or rural settings. Although the educational background of participants varied, none of the participating parents held college degrees.

All participants received interactive inquiry-based training to broaden their general science knowledge about life science, earth science, and physical science, and to create strategies to establish learning environments that encourage an inquiry approach to everyday learning in school and at home. A basic design principle of the HSSC Program is the inclusion of parents in the learning process. This element was critical to the success of the planning phase.

Program Components

Phase I of the HSSC Program included three components: (1) a summer institute that provided intensive, hands-on instruction and learning experiences for participants; (2) ongoing follow-up technical assistance and training support for program implementation; and (3) extended implementation of the HSSC Program with the first cohort of participants in community-based science-rich centers such as area museums, as well as moving into phase II of the program.

The focus of the two-week summer training program was to provide professional development and an opportunity to promote collaboration among teachers and parents for improving problem-solving skills. The primary goal of the summer institute was to create a lifelong interest in science for participants and the children with whom they interact. In keeping with the intent of the National Science Education Standards, the HSSC curriculum materials were developed to assist participants in fostering their own and the children's "natural curiosity" to learn about the world.

The curriculum materials and experiments were designed to promote inquiry-based, hands-on science as a vehicle for language development with young children. Each experiment begins with background information about the topic under investigation and a teacher demonstration module that provides an opportunity for teachers to engage students with manipulative materials and ask guided questions to gain more information about what students know and what they need to learn. As the project participants implemented these plans that were developed during the summer, the technical support became increasingly site-specific, based on individual classroom needs. For example, one teacher expressed the need to learn about various inferential questioning techniques, while another teacher requested strategies for promoting student collaboration.

Data Collection

Data on program implementation were obtained through surveys, on-site observations, and interviews. Participants (teachers, teaching assistants, and parents) were rated as either "encouraging inquiry," because the participants asked questions that helped students gain needed information to solve problems, or "giving away," because the adult immediately answered questions asked by students. In addition, on-site observations were conducted to determine each classroom's primary mode of interaction. Classrooms were classified as "collaborative" or "competitive." The post-implementation surveys were followed by semi-structured, open-ended interviews to learn more about classroom interaction.

Phase I Findings

Changes in Questioning Strategies

Preliminary findings from the post-implementation surveys indicated that 50% of the teachers relied solely on the use of questioning to encourage students' problem solving, 33% encouraged problem solving as well as giving away the answers, and 17% tended to simply "give away" answers as opposed to using questions to get children to try to solve the problems themselves. The majority of parents (83%) engaged in both questioning to

encourage problem solving and giving away answers; 17% engaged in giving away answers only; and "none" engaged in only using questioning to encourage problem solving. Almost half of the classroom assistants reported that they tended to give away answers. In summary, classroom assistants gave away substantially more answers to students when compared with teachers and parents, who encouraged more problem solving through questioning.

Changes in Classroom Interaction

A teacher's philosophy and his or her interaction with students have been found to have a major impact on how students view success and failure. Nicholls (1990) has shown that traditional, competitive classrooms produce children who are overly concerned with how they are doing relative to their peers. This competitive style makes children anxious about mistakes, and students tend to equate their mistakes with failure. This anxiety has been found to affect children's beliefs about themselves and their abilities. Conversely, cooperative classrooms foster a sense of learning through accepting mistakes as experiences for growth. Nicholls further points out that the challenge for teachers is to help students maintain a healthy balance among accepting mistakes as opportunities to learn, believing they have the ability to learn, and knowing that effort will help them maximize that ability. Prior to training, the 12 observed classrooms lacked collaborative interaction among teachers and students. Following the training (spring 1997), the classrooms were observed to determine if there was a change in their primary mode of interaction. Eight of the 12 classrooms were rated as collaborative, engaging in small-group problem-solving teams with verbal interactions among teachers and students. Teachers not only asked questions of students but also encouraged students to ask questions for clarification, to understand that learning takes time, and to understand that mistakes are accepted when followed up with new information to solve problems. Three classes were found to be both collaborative and competitive, fluctuating in interactions during the course of the day. Only one class remained predominantly competitive in nature. Collaborative interactions included working together on projects, with students assuming varied and complementary roles as they worked on problem-solving activities in science. Characteristics of classroom interactions included listening, waiting, acknowledging comments, inviting questions, accepting others' points of view, and encouraging students to express ideas. Competitive interactions included activities that focused on performance with a form of grading attached.

Changes in Classroom Focus

When interviewed after program implementation, participants indicated that they changed their classroom focus to be primarily inquiry-based (75% of classes). The participants said they used more open-ended questions with their students instead of asking yes-no type questions. They asked "wh"-type questions (i.e., who, what, where, when, why, and how) with much greater frequency (encouraging recall, application, and problem solving).

Some teachers set up science centers and other exploratory learning centers within the classroom setting.

Generally, parent involvement reinforced classroom learning. Teachers sent letters to parents, explaining what would be discussed in class and encouraging parents to visit the classroom. Teachers and assistants discovered that the use of language that targeted vocabulary development and questions was integral to enhancing learning and engagement of young children. Teachers reported making a difference in the children's scope of cause-effect knowledge.

At the completion of phase I, participants had many ideas for the future of the HSSC Program. Some teachers planned to engage other faculty members in brainstorming questions that tapped inferential thinking for science experiments. Other teachers looked forward to involving more parents, noting that parental involvement is one key to successful program implementation. Overall, participants anticipated implementing the techniques and using the ideas they learned. Because of the success of phase I, the program was expanded from preschool children to those in the early elementary years (kindergarten through grade 2). Phase II of the program included further implementation, refinement of program materials, and expansion to kindergarten through grade-2 classrooms.

Phase II

Phase II of the HSSC Program involves the formal development of 30 science experiments and a manual covering three science domains: life science, earth science, and physical science (see the appendix). The experiments are based on benchmarks written by the National Science Foundation (National Academy of Sciences, 1996). Using specific language concepts and scientific background information, the teacher initially tests students individually using the pre-test to assess the student's knowledge base. Following the pre-test, the teacher introduces each science experiment to a small group of students or to the entire class. Students also have an opportunity to engage in exploration using the manipulatives and directions within science activity kits. After the experiment is completed, the post-test is administered to assess a student's content knowledge gains.

The HSSC Program encourages children's natural inclination to explore by providing an early learning environment that is conducive to science literacy. The HSSC Program incorporates the use of individualized hands-on science learning activity boxes as well as small-group and whole-class instruction. Providing hands-on learning experiences fosters curiosity in young children and engages them in the social and cognitive processes that promote language and communication skills essential to continued academic success. The combination of explicit, teacher-directed methods and exploratory, child-centered methods allows young children to obtain information, explore their surroundings, and develop meaning, thus honing their communication and problem-solving skills.

The explicit role of the teacher is an important component of this early childhood program. As a facilitator, the teacher assists individual students in gaining new scientific knowledge by relating experiences and answering personal questions when appropriate. Initially, teachers facilitate the

demonstration lesson that introduces the scientific concepts embedded in the students' individualized activities. The classroom teacher provides background information and supports students as they learn newly introduced science material. Manipulative materials and supplies for the science activities are all included in 150 individually boxed learning activity kits.

After each science demonstration, the teacher asks probing questions to determine students' general concept understanding. Based on the lesson taught during the science demonstration, the students will have the opportunity to use their knowledge to work through a series of science activities that are organized into five levels. The science activities are arranged hierarchically by cognitive level from basic matching tasks to higher-level associations based on understanding relationships.

The first level in the hierarchical structure of the program is matching. While the students work on the first science activity, they are encouraged to identify likeness among objects. This level is followed by level 2, a discrimination task. This level focuses on the student's ability to not only identify similarities but to also distinguish differences. These activities help foster the ability to compare and contrast, a basic scientific process (Hammrich, 1998). Level 3 focuses on categorization. Children use their ability to discover similarities and organize information into like units. Level 4 requires the ability to order information for sequencing. Students arrange various items according to patterns or gradations, noting specific stages and order. The final level, level 5, involves an association activity. These activities incorporate previous knowledge levels and challenge students to transfer information, understand relationships, and make new connections.

To demonstrate understanding of scientific concepts, students answer six post-experiment questions that directly relate to the five activity levels. The post-assessment questions are based on a modified taxonomy derived from Bloom (1984). To determine if children have acquired knowledge from engaging in the experiments, students must initially recall factual information. This type of question draws on the student's knowledge of previously introduced information. Table 1 provides a brief look at the six questioning levels that tap increasingly more demanding cognitive abilities.

Table 1

Table 1
Six Levels of Post-Experiment Assessment Questions*

RECALL ↓ facts	CHANGE ↓ added information	GENERALIZE ↓ units of thought	ANALYZE ↓ think it through	JUDGE ↓ speculate	PROBLEM SOLVE ↓ apply to new situations
Tell what...	Tell what X means	Describe how X is used in example	Tell how X and Y are alike or different	Explain why X is better or worse than Y	Explain how you could make it better
Tell when...	Tell why (reason or purpose)	Tell what is an example of...	Explain why you think X did Y	Tell why you agree or disagree	Explain what you plan to do
Tell where...	Tell how X felt	Tell why it happened	Tell what is true/not true	Describe which you choose first/last	Explain what you think will happen next
Tell who or whose...		Explain what can be done	Tell what you learned	Explain what you think will happen	Describe a new thing that can be done
Tell which...					Describe what you can create
Tell how...					Describe how you would do X
Tell how many...					

*Read down

Program Results

The Head Start on Science and Communication (HSSC) Program was implemented in five large urban public school first-grade classrooms in Washington, DC, and Trenton, New Jersey, during the 1999-2000 school year. There were a total of 101 children in the sample population. Of these students, 98 participated in the pre-test (53 females, 45 males), and 85 of those children participated in the post-test (44 females, 41 males). The ages of these students ranged from 7 to 8 years old with a racial composition of 87% African American and 13% Hispanic. Results of the HSSC Program were derived from student performance on the "Unit Pre-Post Tests for Life, Earth, and Physical Sciences" and degree of implementation and classroom processes derived from classroom observations.

Twelve experiments are discussed in this section. Because of the late start of the program within the school year, not all 30 experiments could be completed by teachers and students. Generally, one demonstration experiment with follow-up activities was conducted weekly.

The science and language concepts for each of the 12 experiments of life science, earth science, and physical science include the following:

Changing Fish: change, adaptation, and variations among fish and their environments

Coloring Celery: levels of water and absorption of plants

Evaporating Liquids: wet, dry, and moisture associated with events

Blowing Across: movement, distance, air, and wind

Gathering Nature: plant and animal features for comparison and classification

Finding Earth: varieties of environmental surfaces

Growing Seeds: patterns, similarities, and differences in growth

Making Plants: parts and wholes of plants and their functions

Moistening Seeds: sunlight, moisture, and development of the seed
Organizing Rocks: grouping characteristics and textures
Bouncing High: height, movement, and force
Bubbling Air: space, observation, and size

Implementation of the HSSC Program

The first-grade teachers in this study were chosen by the school principals after the teachers indicated an interest in participating in a science program. The first-grade teachers in the experimental condition followed the HSSC Program, providing standards-based curriculum with learning activity boxes for life science, earth science, and physical science. In addition, these teachers received technical support in their classrooms from an implementation specialist on an average schedule of two times per month. During the fall of 1999, 14 first-grade teachers in the targeted schools were observed to determine the degree of implementation in their classrooms on the 12 critical dimensions of the Adaptive Learning Environments Program (ALEM) of the Community for Learning Comprehensive (CFL) School Reform Model developed by Wang (1992). Degree of implementation scores are reflected in percent form, referring to the number of dimensions met within each category. The 12 areas for degree of implementation are (1) arranging space and facilities, (2) creating and maintaining instructional materials, (3) establishing communication and refining rules and procedures, (4) coordinating and managing support services and extra personnel resources, (5) record keeping, (6) diagnostic testing, (7) prescribing, (8) monitoring and diagnosing, (9) interactive teaching, (10) instructing, (11) motivating, and (12) developing student self-responsibility. An average score for all 12 areas is referred to as the degree of implementation (DOI) composite. Results indicate that in the fall, the average DOI composite for the 4 experimental classroom teachers was 67.30, and the average DOI composite for the 10 control classroom teachers was 81.44. In the spring, following implementation of the HSSC Program, the average DOI composite for the experimental group increased to 87.50, whereas the control group DOI composite remained steady at 81.73.

Table 2

Table 2
Overall Degree of Implementation Changes among
Groups

Group	Experimental Fall 1999	Experimental Spring 2000	Control Fall 1999	Control Spring 2000
Number of Classes	4	5	10	12
Mean	67.30 (25.16)	87.50 (11.99)	81.44 (18.53)	81.73 (25.19)
Change	-	+20.20	-	+0.29

Results indicate that teachers from the experimental classes increased degree of program implementation by approximately 20%, whereas the control classroom teachers made negligible change. Although the teachers in the experimental classrooms started out lower in degree of implementation, they achieved higher scores by the end of the school year than the control classroom teachers for arranging space/facilities, establishing/communicating rules, coordinating/managing support, record keeping, diagnostic testing, prescribing, monitoring/diagnosing, interactive teaching, instructing, and motivating students. The final two assessed areas, creating/maintaining instructional materials and developing student self-responsibility, were similar in degree of implementation scores (less than one point difference) between the two groups by the end of the school year.

Program Gains

The areas that indicated a gain in DOI from fall to spring for teachers with experimental classes included arranging space and facilities (8%), creating and maintaining instructional materials (40%), establishing and communicating rules (20%), coordinating and managing support (30%), record keeping (50%), prescribing (40%), monitoring and diagnosing (25%), interactive teaching (30%), instructing (17%), motivating students (15%), and developing student's self-responsibility (4%). In the control classes, the following increases were noted: creating and maintaining instructional materials (4%), establishing and communicating rules (7%), record keeping (10%), prescribing (7%), monitoring and diagnosing (1%), interactive teaching (14%), and developing student's self-responsibility (6%). Experimental classrooms made superior gains when compared with control classrooms in 11 of 12 DOI areas assessed.

Curriculum-based Pre- and Post-test Results

The "Unit Pre-Post Tests for Life, Earth and Physical Sciences" (Hammrich & Klein, 2000) were administered to first-grade children in five

classes to determine growth in content knowledge. There were two questions asked for each experiment prior to and following program instruction. The first question for each experiment, labeled "A," was factual, based on factual recall of information. The second question for each experiment, labeled "B," was application, based on students' explanations of information. For each question, students received a score of "0," indicating an incorrect response, or a score of "1," indicating a correct response. All pre-tests and post-tests were administered individually to students by the classroom teachers with the support of program staff during pre-test time. Table 3 provides a breakdown of scores for each type of question (A and B) for the 12 completed experiments.

Table 3

Table 3
Gains from Pre- to Post-test Scores for Science Content Knowledge with 12 Experiments

Table 3
Gains from Pre- to Post-test Scores for Science Content Knowledge with 12 Experiments

Experiment Name	Number of Students	Mean Pre-test Score	Mean Post-test Score	Gain
Changing Fish-A	56	.38	1.00	.62
Changing Fish-B	56	.00	.91	.91
Coloring Celery-A	31	.35	.91	.55
Coloring Celery-B	31	.45	.97	.52
Evaporating Liquid-A	12	.17	.92	.75
Evaporating Liquid-B	12	.00	.92	.92
Blowing Across-A	17	.71	1.00	.29
Blowing Across-B	17	.59	1.00	.41
Gathering Nature-A	37	.43	1.00	.57
Gathering Nature-B	37	.00	1.00	1.00
Finding Earth-A	47	.70	1.00	.30
Finding Earth-B	47	.66	.96	.30
Growing Seeds-A	20	1.00	1.00	.00
Growing Seeds-B	20	.00	1.00	1.00
Making Plants-A	20	.20	1.00	.80
Making Plants-B	20	.00	1.00	1.00
Moistening Seeds-A	20	.10	.80	.70
Moistening Seeds-B	20	.00	.55	.55
Organizing Rocks-A	32	.34	.94	.60
Organizing Rocks-B	32	.00	.81	.81
Bouncing High-A	11	.64	1.00	.36
Bouncing High-B	11	.00	1.00	1.00
Bubbling Air-A	12	.50	.92	.42
Bubbling Air-B	12	.33	1.00	.67

Results indicate that there was a significant difference between pre-test and post-test knowledge beyond the $p < .05$ level for all experiments tested. Students in the HSSC Program made significant gains in content knowledge at both factual and application levels.

Gender Differences

There were a total of 53 female first-graders and 45 male first-graders who took the pre-test. Students engaged in self-paced investigations to complete the five levels of each experiment following teacher demonstrations. Post-testing took place when the student completed the entire experiment. Figure 1 indicates that the girls generally scored lower than the boys at pre-test time. In fact, there were only two experiments (#6 - finding earth and #9 - moistening seeds) in which they scored higher than the boys initially. However, post-test results revealed that the girls matched the boys on factually based questions for 7 of the 12 completed experiments and surpassed the boys on one experiment (#10 - organizing rocks).

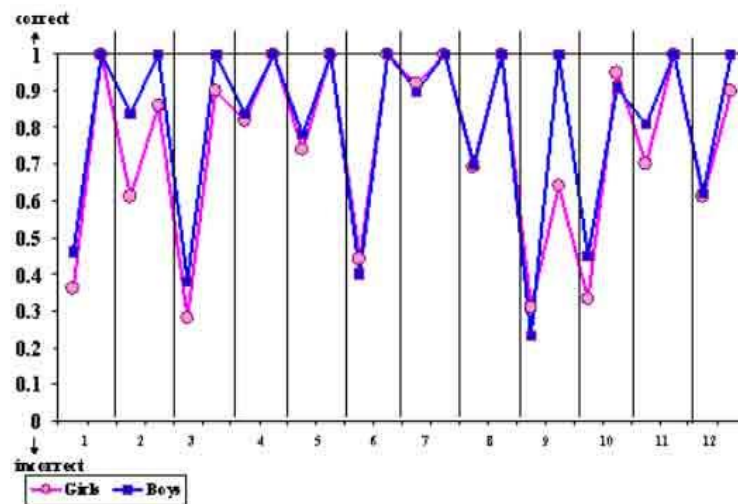


Figure 1. Factual pre- to post-test question means for girls and boys. The first dot within each numbered frame is the experiment pre-test mean score. The second dot within each numbered frame is the post-test mean score for that experiment.

Figure 1. Factual pre- to post-test question means for girls and boys. The first dot within each numbered frame is the experiment pre-test mean score. The second dot within each numbered frame is the post-test mean score for that experiment.

Figure 2 compares girls and boys on application-type questions requiring higher-level reasoning and knowledge about science content. Girls scored

lower than boys for half (6 of 12) of the experiments at pre-test time, considerably better than they performed on the "factual" questions reported in Figure 1. This result could lead one to believe that girls have a stronger ability to make associations and explain information than they do to recall science facts. This finding was recorded prior to any formal instruction with the HSSC Program. After instruction and exploration using the program, post-test results revealed that the girls matched the boys on "application" questions for 8 of the 12 completed experiments and surpassed the boys on one experiment (#1 - changing fish).

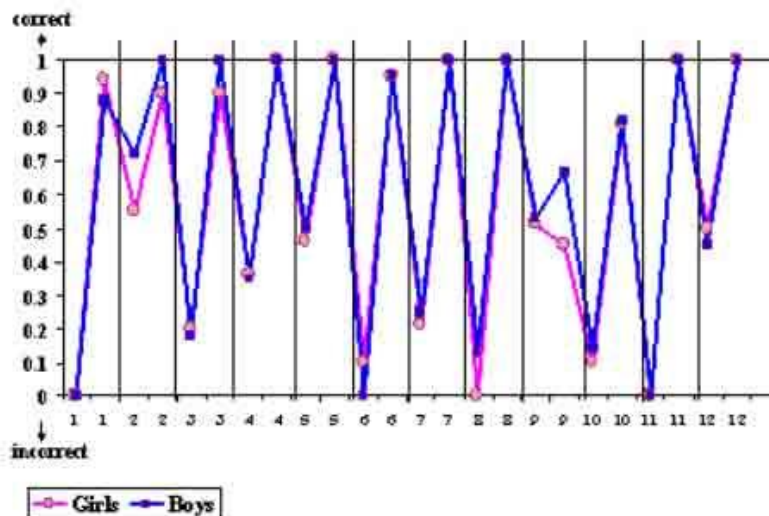


Figure 2. Application pre- to post-test question means for girls and boys.

Figure 2. Application pre- to post-test question means for girls and boys.

Table 4 indicates that although the girls in the study scored slightly lower than the boys on both factual and application questions at pre-test time, their scores approximated the boys at post-test time with both girls and boys evidencing mastery of the material.

Summary of Head Start on Science and Communication Results

Results indicated that the HSSC Program had positive achievement effects for students who participated in the program. Overall, there was a significant difference between pre-test and post-test knowledge beyond the $p < .05$ level for all 12 completed experiments. Gains ranged from a low of 0.00 (an incorrect score) to a high of 1.00 (a correct score). Table 4 below

reveals significant pre- and post-test changes beyond the $p < .05$ level of significance.

Table 4

Table 4
Mean Pre- and Post-test Scores for Factual and Application Questions

	Factual Pre-test Means	Factual Post-test Means	Application Pre-test Means	Application Post-test Means
Girls	.567 (n=53)	.937* (n=44)	.092 (n=53)	.912* (n=44)
Boys	.610 (n=45)	.992* (n=41)	.270 (n=45)	.944* (n=41)

* Significance beyond $p < .05$.

Teachers reported improvement in their methods of instruction and classroom management after using the HSSC Program. Results indicated that in the fall, the average DOI composite for the four HSSC experimental classroom teachers was 67.30, and the average DOI composite for the 10 control classroom teachers was 81.44. In the spring, following the HSSC Program, the average DOI composite for the experimental group increased to 87.50, whereas the control group DOI composite remained steady at 81.73.

The HSSC Program significantly benefited teachers in (1) arranging space and facilities, (2) establishing communication and refining rules and procedures, (3) coordinating and managing support services and extra personnel resources, (4) record keeping, (5) diagnostic testing, (6) prescribing instructional material, (7) monitoring and diagnosing individual needs, (8) interactive teaching, (9) instructing, and (10) motivating students. Students benefited in their comprehension of language and level of knowledge acquired as evidenced by the gains they made when answering both factual and application types of science questions previously unknown.

Conclusion

Gaining knowledge about scientific processes and principles while increasing cognitive, linguistic, and literacy skills is a challenging and important task. Not all children learn in the same way, and they may not learn equally well using only one method. Often, we find that it is best to combine more than one teaching method to help children learn to their maximum potential. To motivate children to explore, understand, analyze, and create, teachers may want to combine both explicit, teacher-directed methods and exploratory, child-centered methods. In this way, students are given basic information from which to begin and to peak their curiosity for continued exploration. The Head Start on Science and Communication Program unites language development and science inquiry with a

multifaceted curriculum to meet the needs of teachers and children within our diverse educational arena of the 21st century.

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Appendix

Science Activity Index

The following index lists the activities and a brief description of the major concepts covered. Activities are grouped by life, earth, and physical sciences.

Life Science

Listening Inside: Things that make sounds vibrate.

Guessing Boxes: Using your senses, you can describe physical properties of different objects.

Coloring Celery: Water can be absorbed.

Pouring Shapes: You can change some materials' properties, but not all materials respond the same way.

Melting Materials: Water can change back and forth from a liquid to a solid and from a liquid to a gas.

Feeling Water: Using your senses, you can feel temperature for variations from hot to cold.

Evaporating Liquids: Water and moisture can disappear if left in an open container.

Changing Fish: Animals have external features that help them adapt and survive.

Ordering Nuts: You can describe and organize objects by their physical properties.

Sensing It: You can use your senses to identify properties of objects.

Physical Science

Bouncing High: You can vary movement of something by force.

Falling Objects: You can change the position of something by pushing it.

Sticking Objects: Magnets can make some materials move.

Spilling Over: Things can be done to change a material's properties.

Bubbling Air: Most living things need air.

Floating Food: Some objects can float, while other objects sink.

Creating Pitch: Sounds can be low or high in pitch.

Coloring Line: You can change colors by adding other colors to them.

Measuring Sound: You can use your senses to hear different sounds.

Moving Hands: You can create heat from friction.

Earth Science

Finding Earth: Different surfaces have different textures.

Making Plants: Plants are comprised of various parts that have different functions.

Blowing Across: Force of air can make objects move various distances.

Organizing Rocks: Rocks come in different sizes, shapes, textures, and colors.

Moistening Seeds: Plants need water and light to grow.

Running Liquids: Physical properties can be changed.

Growing Seeds: Plants share similarities and differences in features and growth.

Sinking Boats: Buoyancy and weight are factors in flotation.

Gathering Nature: Materials in nature have similarities and differences.

Observing Objects: Some objects' physical properties can be changed and others cannot.

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Teachers' Beliefs and Teaching Beliefs

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Abstract

On the premise that teacher education programs, with their emphasis on methods, are largely ineffective in improving current teaching practice, this paper examines ways teacher educators can change some of the beliefs of teachers and teacher candidates early in a program so as to optimize the impact of learning new teaching practices. Three central questions are addressed—what technologies are available to teacher educators for changing candidate beliefs, what ethics come into play concerning changing the beliefs of candidates, and what beliefs should we teach—and the problems posed for changing beliefs. The paper then explores the concept of "dispositions," suggesting that if teacher educators could conceptualize the problem as one of "weak dispositions" rather than one of "beliefs," many of the issues would disappear. Three possible dispositions are explored as goals for a teacher education program: knowledge, collegiality, and advocacy.

Introduction

This essay is based on the premise that teacher education programs are largely ineffective in improving the current practice of teaching. Some programs choose not to improve practice, but instead they strive to prepare teachers who fit into the patterns of current practice. These programs hire practicing teachers to offer methods courses and discourage teacher candidates from studying foundations courses that can serve as a springboard for questioning current ways of teaching. But many of us in the field of teacher education aspire to improve current practice, confident that no matter how effective current practice might be in some schools or in some classrooms, it offers room for improvement. If this premise is correct, it begs the question "Why aren't we more successful?"

Many years ago, Zeichner and Tabachnick (1981) advanced one explanation—namely that the thousands of hours that prospective teachers spend as pupils in the classroom shape their beliefs. These conservative beliefs remain latent during formal training in pedagogy at the university and become a major force once the candidate is in his or her own classroom.

Subsequently, Kennedy (1997) attributed this state of affairs in part to the beliefs that candidates and teachers bring to teacher education. It is not clear what the source of those beliefs might be—a product of their upbringing, a reflection of their life experiences, or a result of socialization processes in schools. Nevertheless, teachers and teacher candidates have strong beliefs about the role that education can play, about explanations for individual variation in academic performance, about right and wrong in a classroom,

and many other areas. Kennedy asserts that these beliefs are used to evaluate the new ideas about teaching that teachers and teacher candidates confront in their methods classes. Those teachings that square with their beliefs are recognized and characterized as "what's new?" Teachings that challenge their beliefs are dismissed as theoretical, unworkable, or even simply wrong.

Kennedy went on to say that one belief that teacher candidates bring to their professional schooling is "that they already have what it takes to be a good teacher, and that therefore they have little to learn from the formal study of teaching" (p. 14).

Bruner (1996) made a similar and related point. He argued that most people have acquired what he calls a "folk pedagogy" that reflects certain "wired-in human tendencies and some deeply ingrained beliefs" (p. 46). This view leads to what Bruner called a new and even revolutionary insight: "[Teacher educators], in theorizing about the practice of education in the classroom, had better take into account the folk theories that those engaged in teaching and learning already have" (p. 46).

If Zeichner, Tabachnick, Kennedy, and Bruner are right, perhaps teacher educators need to take on the task of changing some of the beliefs of teachers and teacher candidates early in a program so as to optimize the impact the program may have on learning new teaching practices. There may be an even more urgent reason for addressing the problem of changing beliefs. Research on attribution theories demonstrates that the attributions that teachers make to their pupils who are doing poorly may reflect their beliefs but also hinder their effective interventions with pupils. So, academic failure often is attributed to external factors in the child's life—the home, the family, the peer group—rather than reflecting on problematic teaching. Pupils in our schools who are the targets of attributions that narrow the ways in which their learning problems are addressed are victims, one might say, of teacher belief systems. Here is a second reason why changing the beliefs of teachers and teacher candidates should be high on the agenda of teacher educators.

Three Central Questions

What Technologies Are Available to Teacher Educators for Changing Candidate Beliefs?

Before addressing this question, it is appropriate to get an understanding about the size of the challenge. It has been long understood that some beliefs are more important than others to individuals, and the more important the belief is, the more difficult it is to change (Rokeach, 1968, p. 3). It is also understood that if a central belief is changed, other beliefs within the person's belief system are affected. It has been argued that beliefs that are linked closely to their ego-sense of self are more important than any others (Rokeach, 1968, p. 4). One can only wonder how many supervisors have convincingly said to their student teachers, "I'm not criticizing you, I'm criticizing your teaching." It seems very likely that beliefs about teaching are very central beliefs and as such resist change.

Another line of research that supports this view is that of Markman (1989) in the area of language development. She argues that "very young

children are capable of forming object categories that are so stable, available, habitual, and familiar that they achieve special status. These basic categories resist change. It is possible that some of the basic "concepts" that all children acquire having to do with justice, learning, and even teaching are learned early and as "basic concepts," in Markman's terms, are difficult to change. In my work with first- and second-year teachers at the University of Delaware, I have collected a number of "autobiographies" in which these teachers tell of their first awareness of teaching as a possible career. It is interesting to note how many speak of "loving to teach" at age 6. Here is a story that reflects many others: "When I returned home from first grade, I would go to my bedroom and line up all my dolls as pupils. Then, I would teach them a lesson. I loved being a teacher, and it was especially enjoyable because my dolls were so well behaved."

This teacher and many of her colleagues reported "learning how to teach" in this manner. It is possible that the beliefs about teaching, learned at an early age, were both linked to a sense of self and were "basic" in Markman's sense-making them extremely difficult to change. Tatto's (1996) important work on beliefs concluded "lay cultural norms [beliefs] among enrollees [in teacher education] are strongly ingrained and that most teacher education, as it is currently structured, is a weak intervention to alter particular views regarding the teaching and management of diverse learners" (p. 155). With this caveat, it is time to review the technologies available to us.

Belief as Criterion for Admission. In a sense, avoiding the challenge, we could change the profiles of our candidates' beliefs by having at least one of the criteria used to admit candidates into teacher education be that of holding the beliefs the faculty has identified as important. Would medical schools accept candidates who did not believe in the germ theory or the scientific method? Would dental schools accept candidates who did not believe in novocaine?

Confronting the Candidate with Dissonance. Dissonance theory suggests that if we engage teacher candidates in activities that arouse dissonance-beliefs might change (Festinger, 1957). One of the sources of dissonance identified by Festinger is "past experience" colliding with new cognitions. It is this source that is perhaps most relevant to teacher education. Of course, there are other standard responses to dissonance—one of which is to discredit its source. Some of the harsh things that are said or felt about teacher educators might well be understood as responses to dissonance. If dissonance is going to be effective, teacher educators will need to address their own and their program's attributes that make it easy to dismiss what is being taught. Perhaps, for instance, professors should all be successful, experienced classroom teachers so candidates cannot ask derisively, "when was the last time you were in a classroom?"

Apprenticeship Experiences. In apprenticeships, "novices and experts are from different worlds and a novice gets to be an expert through the mechanism of acculturation into the world of the expert" (Farnham-Diggory, 1994, p. 466). We have used apprenticeships in teacher education since the beginning, perhaps expecting that in the acculturation process, our candidates will "catch" the correct beliefs (Farnham-Diggory, 1994). Of

course, this hope will be realized only if we place our candidates in settings that activate the targeted beliefs. There is some hope that the culture of the Professional Development Schools, as envisioned by the Holmes Group (1995), will work as a positive force in the acculturation of our teachers. The data are not yet in on this question.

Promoting Professional Development. One could argue that primitive and naive beliefs, "folk pedagogy" in Bruner's terms, reflect developmental stages. Belenky, Clinchy, Goldberger, and Tarule (1986) describe various "ways of knowing" that they consider "developmental." Teacher educators could work with their candidates to promote advancement to higher-level stages. Unfortunately, in their case studies describing how people moved from one stage to another, no systemic interventions seemed to operate. Instead, each person studied had a story about what prompted a change in the way they "knew," but nothing that seemed to give insight to teacher educators.

Values Clarification. L. E. Raths advocated a theory of values that suggested people hold beliefs when they are not fully examined. Only after they are examined and re-accepted after considering alternatives, anticipating consequences, and trying out their implication in life itself can a belief become a value. His procedures for moving beliefs to the category of "values" was called "values clarification" (Raths, Harmin, & Simon, 1966). In the few experiments carried out at the college level, advocates of values clarification found that the process was slow and not always successful.

Case Study. In her doctoral thesis written at the University of Illinois at Urbana-Champaign, McAninch (1993) posited an interesting hypothesis. She advanced the notion that if teacher education candidates were to study cases of instruction through different lenses—the lens of their own beliefs, of constructivism, of direct instruction, and of the project method, changes in belief systems might develop. McAninch derived her hypotheses mainly from the work of Joseph Schwab (1978) who described the process of examining phenomena with different lenses as "polyfocal conspectus." McAninch also built on the work of Belenky et al. cited above. While her ideas seem promising, McAninch's hypotheses have not been formally tested.

None of these approaches is easy or quick. If they did work, and if they were feasible, and if they were ethical, the interventions would probably take considerable time, with the exception of the first one.

What Ethics Come into Play Concerning Changing the Beliefs of Our Candidates?

What are the ethics involved in making a concerted effort to change the beliefs of another person? During the Korean War, such efforts on the part of the Russians and North Koreans to alter the political beliefs of American soldiers who were being held as prisoners of war were well known. While there was always a threat of physical punishment and other deprivations, the brainwashing techniques were often a combination of some of those suggested above—dissonance, social pressures, and immersion in a new culture. POWs were inundated with "facts" about injustices in the United

States, how rich people were benefiting from the war, and how the capitalist system had many contradictions and problems. While such efforts were generally seen as obscene and decidedly "un-American," American universities on occasion ask professors and administrators who are accused of sexism or racism to attend "sensitivity" classes to improve their attitudes and presumably their practices. Even now, 50 years later, any effort to alter the beliefs of audiences or individuals is frequently characterized as "another form of brainwashing." There is something inherently wrong with working to change the beliefs of others, especially from a position of power.

On the other hand, we have felt open to teaching people skills. The wonderful thing about skills is that people who learn them may, because of their belief systems or other reasons, elect not to use them. While brainwashing implies fashioning some permanent and decisive thinking patterns in the minds of teacher candidates, skills are far more external-to be used or not at the whim of the learner. This relaxed attitude about "skills" is reflected as well in our willingness to disclose our skills or to ask others to disclose their skills. Some people would surely object if a teacher took a poll of his class concerning their beliefs about abortion, about race in America, or the nonavailability of health insurance for so many poor people. But to quiz them on their skill in taking a square root, or in asking higher-level questions, or computing the reliability of a teacher test is another matter. This distinction between teaching values and teaching skills prompted Bereiter (1973) to write a book titled *Must We Educate?* The thesis of the book is that public schools should not educate, that is deal with beliefs, but should only train-work with skills.

Why are we willing to uncover our skills but reluctant to share our beliefs? Perhaps it has something to do with the idea that skills represent only a capacity to act, while beliefs reflect dispositions to act. And it is one's dispositions that are at the heart of our personhood. In sum, there are difficult ethical questions to answer if we are going to systematically go about changing the beliefs of teacher candidates.

What Beliefs Should We Teach?

If we decided that we knew how to change beliefs and if we decided that it was ethically appropriate to change the beliefs of teacher candidates when and if certain conditions were met, the next question becomes "which beliefs" do we want to teach? For example, we could ask candidates to respond to the following beliefs (or others, mine are just examples) on a Likert scale, from strongly agree to strongly disagree. How would we want our candidates to respond at the end of the program? Notice how some "ideals," notably items 4 and 5, appear to be contradictory:

All children can learn.

Pupils should be treated as clients.

Children have to be prepared to "read up to grade level."

Children should be treated equally, as a matter of justice.

Children should be treated differently, each in terms of his own needs and interests.

Learning should be fun.

Diversity in a classroom is a strength and not a problem.

The teacher is accountable for what is learned or not learned in a classroom.

Children should be given praise and recognition in terms of what they have earned and deserve.

Another approach to characterizing the beliefs of our candidates is asking them to respond to the following items taken from Tatto's (1996) interesting work:

When pupils are successful in achieving intended goals or objectives, that success is often attributed to one of the following sources (see below). Which do you believe is the most powerful determinant of success? Circle the letter of your choice.

- Pupil home background
- Pupil intellectual ability
- Pupil enthusiasm or perseverance
- Teacher attention to pupil interests and abilities
- Teacher use of effective teaching methods
- Teacher enthusiasm and perseverance

When pupils fail to achieve intended school goals or objectives, the failure is often attributed to one of the following sources (see below). Which do you believe is the most powerful determinant of school failure? Circle the letter of your choice.

- Pupil home background
- Pupil intellectual ability
- Pupil enthusiasm or perseverance
- Teacher attention to pupil interests and abilities
- Teacher use of effective teaching methods
- Teacher enthusiasm and perseverance

It is likely that reliable measures could be obtained if these items were offered in a paired-comparison format-asking candidates to choose "which one of each pair" is the more powerful.

I am trying to suggest that arriving at a set of beliefs in which a faculty group believes and that are considered so important that it is decided that all candidates should acquire them is almost impossible to imagine. So even if we had the technology available to us for changing beliefs, and even if we agreed that it was ethical to change the beliefs of our candidates, deciding on which particular beliefs to advance in our program would be difficult. In sum, in spite of the insights of Zeichner through Bruner cited above, changing candidates' beliefs looks like a hopeless task.

Shifting the Focus

The previous paragraphs suggest in the main a dead end here. If our candidates have beliefs that interfere with their learning new ideas about teaching and learning, and if those beliefs can actually do harm to their pupils, certainly we are obliged to change them. But a review of the technologies available to us is not promising. We are not sure which are "better" beliefs, and if we knew, we do not have a way of changing them.

Lilian Katz offers us an insight that may lead us out of this conundrum. She introduced to the field the notion of "dispositions" (Katz & Raths, 1985). In her framework, beliefs can be considered "pre-dispositions." She

used the term dispositions as a summary of actions observed (p. 302). Perhaps we would benefit from changing our focus away from beliefs per se to "dispositions." It may be more tolerable to say to our candidates and to ourselves, "we mean to strengthen certain dispositions in our candidates' repertoire"-dispositions that almost surely already exist in our candidates. We would not be in the business of change-but of "strengthening." The dispositions might include:

Making setting attributions and not trait attributions.

Making efforts to meet children's needs.

Working to clarify children's ideas instead of judging them.

Rewarding approximations.

It is surely the case that these few examples are grounded in beliefs that are not made explicit. However, if we adopted the notion of "dispositions" as the frame for our goals, we could ask that our candidates behave in ways consonant with these dispositions or others we might select, regardless of what they "believed" about them.

There is a problem with my listing-the entries constitute a collection and not a set. It would be so much better, from a conceptual standpoint, if we had thoughtful categories to prompt our identification of dispositions. Here is an attempt to make the selection of the dispositions we plan to strengthen into some sort of rationale.

A teacher is a professional. There are at least three elements that separate professional persons from those working in careers that are not professions. The first has to do with knowledge. Professionals not only act with knowledge, they value the knowledge they possess. One set of dispositions to strengthen in our candidates is to value knowledge. The second has to do with collegiality. Professionals reach out to consult with one another, to unite in associations to advance professional goals, and to collaborate in the best interests of their clients. We could choose to strengthen dispositions on the part of our candidates to work with others to achieve common goals. A third general area associated with professions is that of advocating for clients in their care. For teachers, this advocacy means not only watching out for pupils assigned to their classes, but also for the poor, the disadvantaged, and the downtrodden in our communities. Ideally, professions are not guided by a profit motive. Instead, they are concerned with issues of justice, fairness, and the well-being of their clients and for others who may become clients. In this respect, professionals in all fields give their time and dedicate their concerns on behalf of their principal clients and for those in our society who are less fortunate. This third area, advocacy, could become another source of dispositions that we take on as goals.

Let me illustrate how this might work: Taking these categories as a starting point, consider the following dispositions we might take on as goals for a teacher education program:

Knowledge

Given a problem or issue, our candidates wonder about what the literature has to offer. They are disposed to look up references and read what research summaries have to say about the problem or issue. They

demonstrate learning new ideas from books, pamphlets, professional journals, and from each other.

In discussing a problem or issue, our candidates use vocabulary in the field, not to distance themselves from pupils or parents, but to convey with precision the meanings they attach to phenomena.

Given a problem or issue, our candidates ask for the data that support potential solutions and ask what alternatives are available to consider.

Collegueship

Our candidates associate with other colleagues in professional study groups, professional associations, and in unions for the purpose of solving problems, improving personal skills and understandings, and contributing to the betterment of society through joint actions.

Given a problem or issue, our candidates are disposed to seek help from colleagues, supervisors, administrators, and from other professionals in the community.

Given a problem or issue, our candidates raise questions about ethical principles and concerns.

Advocacy

Given a problem or an issue, our candidates are sensitive to notions of justice, fairness, and equity as they affect their own pupils and all pupils within the community.

When analyzing the behaviors of pupils or parents, our candidates initially look to "setting" factors rather than "trait" factors to account for the behavior.

In any and all experiences involving pupils or their parents, whether incidental or planned, teachers seek ways to transform them into educational opportunities.

Our candidates relate what is being taught to the lives and experiences of their pupils, teaching in ways that are sensitive to the contexts in which pupils live and with which they are familiar.

In relating to their own pupils, our candidates demonstrate that pupil views are important.

Of course, this set of dispositions is an example. A faculty that adopted these dispositions or a similar set as goals would also need to teach other skills and understandings, some of which are prerequisites for these dispositions. One cannot have a disposition without an associated skill.

The advantage to aspiring to change the dispositions of our candidates seems to be the following. First, because dispositions are closely related to skills and practices, the focus seems to move away from the dicey topic of beliefs. Second, because dispositions can be written at a convenient level of abstraction, not "micro" and not "macro," teacher educators might more likely agree on a set as a focus for a particular program. Finally, dispositions can be strengthened by modeling and through apprenticeship experiences. Focusing on dispositions might be a way out of the dead end my analysis of the literature on changing beliefs suggests.

Summary

This paper cited authorities such as Kennedy (1997) and Bruner (1996) as asserting that the prior beliefs of teacher candidates can hinder learning about teaching. The implication that seems reasonable is that teacher educators must uncover and change particular beliefs that hinder the efficacy of teacher education. Next, problems associated with changing beliefs-technical problems, theoretical problems, and ethical problems-were cited. Finally, it was suggested that instead of conceptualizing the problem as one of "beliefs," if teacher educators would see the problem as one of dispositions, many of the issues would disappear. The reader must decide if that is the case.

Acknowledgments

I wish to acknowledge many of my gifted colleagues who have written about teacher beliefs recently. They include N. Brickhouse (1990); M. F. Pajares (1992); P. L. Peterson, E. Fennema, T. P. Carpenter, and M. Loeff (1989); R. Prawat (1992); V. Richardson (1996); and K. Zeichner and J. M. Gore (1990). Of course, this listing is incomplete. This paper was presented at a symposium honoring Lilian Katz in Champaign, Illinois, November 5-7, 2000.

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Multicultural Education and Children's Picture Books: Selected Citations from the ERIC Database

ERIC Documents

ED433394 UD033080

Title: Art or Propaganda? Pedagogy and Politics in Illustrated African-American Children's Literature since the Harlem Renaissance.

Author(s) Thompson, Audrey

Pages: 53

Publication Date: April 23, 1999

Notes: Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, April 19-23, 1999).

Available from: EDRS Price MF01/PC03 Plus Postage.

Document Type: Information Analysis (070); Speeches/meeting papers (150)

This paper explores assumptions about children's political thinking as reflected in African American children's literature, with particular attention to picture books and illustrated magazine stories. Framed in terms of the "art or propaganda" distinction that the Harlem Renaissance philosopher Alain Locke used to clarify the role of art in social change, the paper discusses how African American children's literature since the Harlem Renaissance has taken up issues of race and racism. Many books have been intended to combat racism, but neither the artistic nor political merits of a book guarantee its success in an antiracist curriculum. One contribution that educational research can make is challenging the assumption by white teachers that a well-intentioned book will not be offensive to people of color. Research can help sensitize teachers to the issues they need to consider and it can provide a context for deciding the appropriateness of a particular book in the classroom. The example of the book "Nappy Hair" by Carolivia Herron shows that a book may be regarded very differently by different groups. (Contains 22 endnotes and 64 references.) (SLD)

Descriptors: Beliefs; *Black Literature; Black Stereotypes; *Blacks; Children; *Childrens Literature; *Cultural Awareness; Multicultural Education; Picture Books; *Politics; Racial Bias; *Racial Discrimination

Identifiers: *African Americans; Harlem Renaissance; *Locke (Alain Leroy)

ED420868 CS216387

Title: Canadian Multicultural Picture Books.

Author(s) Bainbridge, Joyce; Pantaleo, Sylvia; Ellis, Monica

Pages: 23

Publication Date: March 1998

Notes: Paper presented at the Annual Spring Conference of the National Council of Teachers of English (Albuquerque, NM, March 19-21, 1998).

Available from: EDRS Price MF01/PC01 Plus Postage.

Document Type: Information Analysis (070); Speeches/meeting papers (150)

Educators have a particular interest in multicultural education and the use of literature as an avenue for the exploration and celebration of diversity within Canada. There is a need to understand the interdependence of all people in a global culture and an urgent need for peace and understanding. Five works of children's literature "Very Last First Time" by J. Andrews, "Ghost Train" by P. Yee, "How Smudge Came" by N. Gregory, "Red Parka Mary" by P. Eyvindson, and "The Moccasin Goalie" by W. Brownridge) depict a wide range of minorities and issues of discrimination--age, gender, physical and mental disability, and ethnicity. Research has shown that storybook reading accompanied by discussion can significantly improve a child's acceptance of difference. With this in mind, it is up to individual teachers to select multicultural books for their classes, and allow time to discuss the issues that arise from them. The early years in preschool and in the elementary grades are important in developing attitudes and values that are compatible with current expectations and circumstances within Canadian society. Multicultural children's books can be used effectively as means for coming to understand individual human stories, and the universal emotions and themes they contain. Appended is a list of Canadian Multicultural Picture Books (fiction). contains 23 references. (RS)

Descriptors: *Childrens Literature; Diversity (Student); Elementary Education; Ethnicity; Foreign Countries; *Multicultural Education; *Picture Books; Reading Material Selection; Social Discrimination

Identifiers: *Canada; *Multicultural Literature
ED419248 CS216343

Title: Gender Stereotypes in Children's Picture Books.

Author(s) Narahara, May M.

Pages: 22

Publication Date: 1998

Notes: Exit Project EDEL 570, University of California, Long Beach.

Available from: EDRS Price MF01/PC01 Plus Postage.

Document Type: Reports--Research (143)

Research has examined how gender stereotypes and sexism in picture books affect the development of gender identity in young children, how children's books in the last decade have portrayed gender, and how researchers evaluate picture books for misrepresentations of gender. A review of the research indicated that gender development is a critical part of the earliest and most important learning experiences of a young child. Picture books provide role models for children in defining standards for feminine and masculine behavior; gender stereotypes and sexism limit children's potential growth and development; non-sexist books can produce positive changes in self-concept, attitudes, and behavior; and picture books in the last decade have shown some improvement in reducing stereotypes, but subtle stereotypes still exist. Recommendations include: teachers,

parents, and care-givers need to be critical in evaluating books they plan to share with young children; teachers and parents need to become familiar with criteria for evaluating books; teachers need to be critical in selecting multicultural literature; more minorities, particularly authors of Mexican American and African American ethnicity, need to write fiction for young children that authenticate their heritage; universities need to train teachers to be aware of the use of male-dominated language and the positive benefits of using non-sexist books and classroom materials; and research on books published should continue. (Contains 21 references, appendixes contain a checklist for sexism in children's literature, and two tables and two figures of data. (RS)

Descriptors: *Childrens Literature; Elementary Education; Fiction; *Multicultural

Education; *Picture Books; Reading Material Selection; Reading Research; *Sex Stereotypes; Sexism in Language; Teacher Role

Identifiers: *Gender Issues

ED413926 IR056758

Title: Multicultural Diversity of Children's Picture Books: Robert Fulton Elementary School Library.

Author(s) Mosely, Joyce J.

Pages: 37

Publication Date: July 1997

Notes: Master's Research Paper, Kent State University.

Available from: EDRS Price MF01/PC02 Plus Postage.

Document Type: Dissertations/Theses (040); Reports--Evaluative (142)

The United States has a culturally diverse society. Since children are influenced by what they see and hear at a young age, the aim of this study was to determine if the picture book collection of the Robert Fulton Elementary School Library (Cleveland, Ohio) reflects the cultural diversity of its students. The secondary objective was to ensure that students have materials to learn about a diversity of cultures, and the ability to develop a sense of themselves in the books they read. A content analysis was conducted of 143 books in a sample of 201 picture books. Each book was analyzed for: ethnic representation of characters, central and incidental; ethnicity in terms of roles and gender; the importance of the family to the characters and the story; the authenticity and realism of the races portrayed; and whether children would be positively or negatively affected by the content of the book. The characters in the majority of the titles were realistic and little stereotyping was found. There is a need for more books on the cultures of African Americans, Hispanics, Asians, and Native Americans in the collection of this library. If a school is predominantly African American, then the collection of the library should reflect that fact. Publishers need to make a greater effort to find multicultural authors and publish more multicultural books. (Contains 42 references.) (Author/SWC)

Descriptors: American Indians; Asian Americans; Blacks; Childrens Literature; Content Analysis; Cultural Awareness; Cultural Education; Cultural Enrichment; *Cultural Pluralism; *Cultural Relevance; Elementary Education; Ethnic Groups; Family (Sociological Unit); Hispanic Americans;

Library Collection Development; Library Material Selection; *Multicultural Education; *Picture Books; Racial Distribution; *School Libraries; Sex Role; User Needs (Information)

Identifiers: *Multicultural Literature; Multicultural Materials
ED412168 SO028520

Title: Picture Books as a Social Studies Resource in the Elementary School Classroom. ERIC Digest.

Author(s) Manifold, Marjorie Cohee

Author Affiliation: ERIC Clearinghouse for Social Studies/Social Science Education, Bloomington, IN.(BBB24392)

Pages: 4

Publication Date: March 1997

Sponsoring Agency: Office of Educational Research and Improvement (ED), Washington, DC. (EDD00036)

Contract No: RR93002014

Report No: EDO-SO-97-4

Available from: EDRS Price MF01/PC01 Plus Postage.

Availability: ERIC Clearinghouse for Social Studies/Social Science Education, 2805 East Tenth Street, Suite 120, Indiana University, Bloomington, IN 47408; phone: 812-855-3838, 800-266-3815.

Document Type: ERIC product (071); ERIC digests in full text (073)

Target Audience: Practitioners; Teachers

Picture books are useful tools for teaching many abstract and complex concepts of the social studies at the elementary level. They allow students to develop visual literacy through sustained viewing time necessary for exploration, critique, and reflection on the images portrayed. Numerous examples of picture books are presented to support such development. This digest is divided into eight sections: (1) Introduction; (2) "Images as Allegories"; (3) "Historic Photographers and Artists"; (4) "Illustrated Storyboard Narrative"; (5) "Illustrated Timelines"; (6) "Multicultural Education through Diverse Socio-Cultural Images"; (7) "Developing Social Empathy through Pictures"; and (8) "Focal Points of Lessons on Human Similarities and Differences." Contains six additional resources. (EH)

Descriptors: *Childrens Literature; Critical Thinking; Critical Viewing; Elementary Education; *Elementary School Curriculum; Global Education; Illustrations; Instructional Materials; Multicultural Education; *Picture Books; *Social Studies; *Visual Literacy; Visual Perception

Identifiers: ERIC Digests

ED420071 CS216364

Title: The New Press Guide to Multicultural Resources for Young Readers.

Author(s) Muse, Daphne, Ed.

Pages: 704

Publication Date: 1997

ISBN: 1-56584-339-8

Available from: Document Not Available from EDRS.

Availability: The New Press, 450 West 41st Street, New York, NY 10036 (\$60).

Document Type: Book (010); Guides--Non-classroom (055); Reference materials (130)

This comprehensive guide to multicultural children's literature features over 1,000 critical and detailed book reviews for pre-school, elementary, and middle school students. The reviews in the guide cover a vast range of picture books, biographies, poetry, anthologies, folktales, and young adult novels, and include synopses, suggestions for classroom use, and assessments of key elements such as cultural sensitivity of text and illustrations. The guide's reviews are organized using an innovative thematic approach designed to aid teachers and parents in integrating these works into existing reading lists and at home. The guide also contains essays by leading writers and educators on key issues in multicultural education, such as recent immigrant experiences, human rights, and building cross-cultural relationships, as well as classics like the Council on Interracial Books for Children's "10 Quick Ways To Analyze Children's Books for Racism and Sexism." Also included are illustrations, timelines, sidebars, lesson plans, and vignettes showing how to incorporate multicultural books into the curriculum. Information on multimedia resources including films, videos, and CD-ROMS is provided. The guide contains an index of authors, illustrators, titles, and ethnicities. (NKA)

Descriptors: *Adolescent Literature; Biographies; Book Reviews; *Childrens Literature; *Cultural Context; Elementary Education; Fiction; *Literary Criticism; Literature Appreciation; Middle Schools; *Multicultural Education; Picture Books; Poetry; Preschool Education; Resource Materials; *Thematic Approach

Identifiers: Cultural Sensitivity; Folktales; *Multicultural Literature
ED415507 CS216145

Title: Kaleidoscope: A Multicultural Booklist for Grades K-8. Second Edition,

Covering Books Published from 1993-95. NCTE Bibliography Series.

Author(s) Barrera, Rosalinda B., Ed.; Thompson, Verlinda D., Ed.; Dressman, Mark, Ed.

Author Affiliation: National Council of Teachers of English, Urbana, IL.(BBB05210)

Pages: 257

Publication Date: 1997

Notes: For the previous edition, see ED 375 424.

ISBN: 0-8141-2541-7

ISSN: 1051-4740

Available from: EDRS Price MF01/PC11 Plus Postage.

Availability: National Council of Teachers of English, 1111 W. Kenyon Road, Urbana, IL 61801-1096 (Stock No. 25417-3050: \$12.95 members, \$16.95 nonmembers).

Document Type: Reference materials--Bibliographies (131)

Target Audience: Practitioners

This second edition bibliography, like its predecessor, offers educators and other interested readers a guide to some of the most compelling multicultural literature for elementary and middle school students. It includes annotations of almost 600 nonfiction and fiction texts published from 1993 to 1995 that focus on people of color, particularly African Americans, Asian Americans, Latinos/Hispanic Americans, and Native Americans. Most annotations identify the particular country, nationality, or ethnic group of the characters and setting. Chapters group books by genre or theme rather than by cultural group, however, to emphasize both cultural diversities and similarities. Nonfiction is divided into "People and Places," "Ceremonies and Celebrations," "Understanding the Past: History," "Social and Environmental Issues," "Concepts and Other Useful Information," and "The Arts." Fiction entries are divided primarily by age level, with books for the very young, picture books, fiction for intermediate readers, and novels for older readers. Other categories include "Individuals To Know: Biography and Autobiography," "Poetry, Verse, and Song," "Folktales, Myths, and Legends: Old and New," and "Anthologies." Also included are a detailed subject index; a list of resources pertaining to multicultural literature; a list of award-winning works of poetry, fiction, drama, and nonfiction for young readers given from 1993 to 1997; a guide to ordering books; and indexes of authors, illustrators, and titles. (RS)

Descriptors: *Adolescent Literature; Annotated Bibliographies; Anthologies; *Childrens Literature; Cultural Differences; Elementary Education; Ethnic Groups; *Fiction; Folk Culture; Foreign Countries; Junior High Schools; Middle Schools; Multicultural Education; *Nonfiction; Picture Books; Poetry

Identifiers: *Multicultural Literature; Multicultural Materials; *Trade Books

ED406681 CS215811

Title: Building Bridges with Multicultural Picture Books for Children 3-5.

Author(s) Beaty, Janice J.

Pages: 282

Publication Date: 1997

ISBN: 0-13-400102-8

Available from: Document Not Available from EDRS.

Availability: Merrill Prentice-Hall, Order Processing, P.O. Box 11071, Des Moines, IA 50336-1071 (\$32).

Document Type: Book (010); Guides--Classroom--Teacher (052)

Target Audience: Practitioners; Teachers

Focusing on the common bonds of all children everywhere while honoring their differences, this book shows teachers how to choose appropriate picture books, how to lead children into book extension activities featuring multicultural characters, and how to develop an entire multicultural curriculum with these books. Each chapter in the book concludes with learning activities, references, additional reading, and (in most chapters) lists of children's books and software programs. Chapters in the book are (1) Discovering Common Bonds; (2) Choosing Appropriate

Picture Books; (3) Developing Self-Esteem; (4) Relating to Family Members; (5) Getting Along with Other Children; (6) Engaging in Physical Expression; (7) Speaking Other Language; (8) Eating Fine Foods; (9) Creating Arts and Crafts; (10) Making Music and Dance; (11) Caring about the Earth; and (12) Creating a Multicultural Curriculum. An approximately 750-item topical children's book list is attached. (RS)

Descriptors: Art Activities; *Childrens Literature; Class Activities; Classroom Techniques; Curriculum Development; Diversity (Student); Early Childhood Education; Fine Arts; Interpersonal Relationship; *Multicultural Education; Physical Activities; *Picture Books; *Reading Material Selection; Second Languages; Self Esteem

Journal Articles

EJ607816 CS759331

Title: Beyond Mulan: Rediscovering the Heroines of Chinese Folklore.

Author(s) Li, Suzanne D.

Source: New Advocate, v13 n2 p143-55 Spr 2000

Publication Date: 2000

ISSN: 0895-1381

Document Type: Journal articles (080); Opinion papers (120); Reference materials--Bibliographies (131)

Notes how sadly the Disney treatment of the story of Mulan reduced both the character Mulan and the story's broad appeal. Presents and critiques four picture book versions of the Mulan legend. Discusses 16 picture books of original folklore based on authentic Chinese sources. Concludes with criteria for evaluating Chinese folklore in picture books. (SR)

Descriptors: *Adolescent Literature; *Childrens Literature; *Cultural Awareness; Elementary Secondary Education; Evaluation Criteria; Folk Culture; Foreign Countries; *Multicultural Education; *Picture Books

Identifiers: *China

EJ606392 CS759260

Title: "Reading the Word and the World" within a Literature Curriculum.

Author(s) Enciso, Patricia; Rogers, Theresa; Marshall, Elizabeth; Jenkins, Christine; Brown, Jacqueline; Core, Elizabeth; Cordova, Carmen; Youngsteadt-Parish, Denise; Robinson, Dwan

Source: New Advocate, v12 n1 p89-103 Win 1999

Publication Date: 1999

ISSN: 0895-1381

Document Type: Journal articles (080); Reference materials--Bibliographies (131); Reports--Descriptive (141)

Describes 19 children's books (published between 1196 and 1998), in categories of poetry, picture books, participation books, chapter books for older readers, and nonfiction. Discusses them in tandem with landmark books to reflect on social and historical contexts and to help teachers talk with children about the enduring images and changing perspectives that affect their views of themselves and others. (SR)

Descriptors: *Childrens Literature; Elementary Education; Multicultural Education; Nonfiction; Picture Books; Poetry; Reading Material Selection; Reading Materials; Social Change; Social Influences
EJ596110 SO531752

Title: Multicultural Picture Books: Perspectives from Canada.

Author(s) Bainbridge, Joyce M.; Pantaleo, Sylvia; Ellis, Monica

Source: Social Studies, v90 n4 p183-88 Jul-Aug 1999

Publication Date: 1999

ISSN: 0037-7996

Document Type: Guides--Classroom--Teacher (052); Journal articles (080); Reports--Descriptive (141)

Conveys that multicultural children's literature can support and encourage tolerance and understanding among children. Presents information about multiculturalism in Canada and gives criteria to help teachers select multicultural literature. Suggests a number of picture books that may be used to encourage positive attitudes toward difference at all elementary grade levels across the curriculum. (CMK)

Descriptors: *Childrens Literature; *Cultural Differences; Cultural Pluralism; *Diversity (Student); Elementary Education; Foreign Countries; *Multicultural Education; *Picture Books; Reading Material Selection; *Social Studies; Student Attitudes

Identifiers: *Canada

EJ594691 CS757970

Title: Ten International Books for Children.

Author(s) Yokota, Junko

Source: Journal of Children's Literature, v25 n1 p48-54 Spr 1999

Publication Date: 1999

Notes: Theme: A Global Perspective--Children's Literature in an International Context.

ISSN: 1521-7779

Availability: Children's Literature Assembly of the National Council of Teachers of English, The Ohio State University, School of Teaching and Learning, 333 Arps Hall, 1945 North High Street, Columbus, OH 43210-1172.

Document Type: Journal articles (080); Reference materials--Bibliographies (131)

Presents a 10-item annotated bibliography of unfamiliar international novels and picture books set in contemporary times. Considers how international books offer children in the United States an opportunity to read the best texts and view the best illustrations of books published abroad. Seeks to balance representation across various countries and discusses where to look for recommendations of international books. (SC)

Descriptors: Annotated Bibliographies; *Childrens Literature; *Cultural Awareness; Elementary Education; *Illustrations; *Multicultural Education; *Novels; *Picture Books

EJ594687 CS757966

Title: Picture Books: A European Perspective.

Author(s) Cotton, Penni

Source: Journal of Children's Literature, v25 n1 p18-27 Spr 1999

Publication Date: 1999

Notes: Theme: A Global Perspective--Children's Literature in an International Context.

ISSN: 1521-7779

Availability: Children's Literature Assembly of the National Council of Teachers of English, The Ohio State University, School of Teaching and Learning, 333 Arps Hall, 1945 North High Street, Columbus, OH 43210-1172.

Document Type: Guides--Non-classroom (055); Journal articles (080)

Journal Announcement: CIJMAY2000

Describes the author's experience sharing picture books with children from different countries while she absorbed the stories, language, and culture. Discusses the recent emergence and popularity of the picture book with its polysemic nature, interdependency of picture and text, universality of themes, and its potential to speak across nations. (SC)

Descriptors: *Childrens Literature; *Cultural Awareness; Elementary Education; Ethnic Relations; *Illustrations; *Intercultural Communication; *Multicultural Education; *Picture Books

EJ583490 CS757083

Title: Cultural Diversity + Supportive Text = Perfect Books for Beginning Readers.

Author(s) Opitz, Michael F.

Source: Reading Teacher, v52 n8 p888-90 May 1999

Publication Date: 1999

ISSN: 0034-0561

Document Type: Journal articles (080); Reference materials--Bibliographies (131)

Journal Announcement: CIJNOV1999

Offers brief annotations of 21 picture books that address cultural diversity while offering language that supports beginning readers. Includes a chart noting which language features that support beginning readers are part of each book. (SR)

Descriptors: Annotated Bibliographies; *Beginning Reading; *Childrens Literature; *Multicultural Education; *Picture Books; Primary Education; Reading Material Selection; Reading Materials

EJ580324 PS528970

Title: An Exploration of the Uses of Children's Books as an Approach for Enhancing Cultural Diversity.

Author(s) Pardeck, John T.; Pardeck, Jean A.

Source: Early Child Development and Care, v147 p25-31 Aug 1998

Publication Date: 1998

Notes: Special Issue on "Children and Diversity."

ISSN: 0300-4430

Document Type: Journal articles (080); Reports--Research (143)

Journal Announcement: CIJSEP1999

Offers strategies for using children's books as tools for teaching able-bodied children about the unique needs of children with disabilities and how disabilities are an important aspect of cultural diversity. Notes five genres for conducting bibliotherapy: fiction, nonfiction, self-help books, fairy tales, and picture books. Provides an annotated list of children's books focusing on the topic of disabilities. (JPB)

Descriptors: *Annotated Bibliographies; Bibliotherapy; *Childrens Literature; Cultural Differences; *Disabilities; Elementary Education; Fairy Tales; Fiction; *Multicultural Education; Nonfiction; Picture Books

EJ569667 UD520834

Title: Who Belongs Here? Portraying American Identity in Children's Picture Books.

Author(s) Steiner, Stanley F.

Source: MultiCultural Review, v7 n2 p20-27 Jun 1998

Publication Date: 1998

ISSN: 1058-9236

Document Type: Journal articles (080); Reports--Descriptive (141)

Journal Announcement: CIJMAR1999

Provides examples of children's literature that can be used to begin dialogs on issues of similarities, differences, prejudice, exclusion and inclusion, violence, and social justice. Picture books chosen for broad appeal and multiple uses, even with older students, are described. (SLD)

Descriptors: *Childrens Literature; *Cultural Awareness; Cultural Differences; Dialogs (Language); Elementary Education; Interpersonal Communication; *Multicultural Education; *Picture Books; Preschool Education; *Racial Bias; *Violence

Identifiers: Similarity (Concept); *Social Justice

EJ562410 CS755223

Title: Visiting South Africa through Children's Literature: Is it Worth the Trip? South African Educators Provide the Answer.

Author(s) Labbo, Linda D.; Field, Sherry L.

Source: Reading Teacher, v51 n6 p464-75 Mar 1998

Publication Date: 1998

ISSN: 0034-0561

Document Type: Journal articles (080); Reports--Research (143)

Journal Announcement: CIJOCT1998

Shares South African educators' perspectives on 17 selected picture books about South Africa. Finds that they highly recommend these books. Offers their comments and cautions about the extent to which these books accurately portray life in South Africa. Offers suggestions for teachers who want to use such books to promote awareness and appreciation of the perspectives of other cultures. (SR)

Descriptors: *Childrens Literature; Cultural Differences; Cultural Pluralism;

Educational Research; Elementary Education; *Foreign Countries; *Multicultural

Education; *Picture Books; *Teacher Attitudes
Identifiers: *South Africa
EJ555288 CS754364

Title: Reexamining the Issue of Authenticity in Picture Books.

Author(s) Mo, Weimin; Shen, Wenju
Source: Children's Literature in Education, v28 n2 p85-93 Jun 1997
Publication Date: 1997
ISSN: 0045-6713
Document Type: Journal articles (080); Reports--Evaluative (142)
Journal Announcement: CIJMAY1998

Examines picture books portraying Asian societies as a means to discuss the criteria of authenticity (not simply nonstereotypes) in both the literature and artwork of picture books. Discusses authenticity and cultural acceptance in terms of both story selection and adaptation, authenticity and cultural conventions (in terms of value implications), and authenticity in artwork. (SR)

Descriptors: *Childrens Literature; Cultural Differences; Cultural Pluralism; Elementary Secondary Education; Ethnic Stereotypes; Multicultural Education; *Picture Books
Identifiers: Asian Culture; *Authenticity
EJ540752 CS753195

Title: Issues of Representation: Caldecott Gold Medal Winners 1984-1995.

Author(s) Albers, Peggy
Source: New Advocate, v9 n4 p267-85 Fall 1996
Publication Date: 1996
ISSN: 0895-1381
Document Type: Journal articles (080); Opinion papers (120); Reports--Evaluative (142)
Journal Announcement: CIJAUG1997

Investigates Caldecott-award-winning books in an attempt to determine whether they attend to the pluralism and democracy that schools strive for. Finds that representations of people of color and females continue to reify cultural stereotypes. Discusses ways readers might become more sensitive to gender, class, and ethnic issues. (TB)

Descriptors: *Childrens Literature; *Cultural Awareness; *Cultural Differences;
Democracy; Elementary Education; Ethnic Stereotypes; *Females; Feminism;
*Multicultural Education; *Picture Books; Sex Stereotypes
EJ537371 CS752796

Title: Simple Lessons from Multicultural Children.

Author(s) Cunard, Joanne
Source: Reading Horizons, v37 n2 p143-54 1996
Publication Date: 1996
ISSN: 0034-0502

Document Type: Journal articles (080); Opinion papers (120); Reports--
Descriptive (141)

Journal Announcement: CIJJUN1997

Discusses designing, initiating, and collecting observational data from a program designed for a multicultural inner-city kindergarten classroom to teach emergent literacy, to use picture books representing children's cultures, and to share responsibility for children's own learning by freely initiating interactions with print materials. Notes that the school system, once public, was purchased by a private company. (RS)

Descriptors: Cultural Differences; *Emergent Literacy; Inner City; Instructional Effectiveness; *Multicultural Education; Picture Books; Primary Education; Program Design; Program Implementation; Urban Education; Whole Language Approach

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Starting School: Effective Transitions

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Abstract

This paper focuses on effective transition-to-school programs. Using a framework of 10 guidelines developed through the Starting School Research Project, it provides examples of effective strategies and transition programs. In this context, the nature of some current transition programs is questioned, and the curriculum of transition is problematized. In particular, issues are raised around who has input into such programs and who decides on appropriate curriculum.

Introduction

The Significance of Starting School

Starting school is an important time for young children, their families, and educators. It has been described as "one of the major challenges children have to face in their early childhood years" (Victorian Department of School Education, 1992, p. 44), "a big step for all children and their families" (New South Wales Department of School Education, 1997, p. 8), and "a key life cycle transition both in and outside school" (Pianta & Cox, 1999, p. xvii). Pianta and Kraft-Sayre (1999, p. 47) suggest that the transition to school "sets the tone and direction of a child's school career," while Christensen (1998) notes that transition to school has been described in the literature as a rite of passage associated with increased status and as a turning point in a child's life.

Whether or not these descriptions are accurate, they highlight the potential significance of a child's transition to school. In Kagan's (1999) words, starting school is a "big deal." It is clearly a key experience not only for the children starting school but also for educators—both in schools and in prior-to-school settings—and for their families. Bailey (1999, p. xv) summarizes the importance of this experience in the following way:

Kindergarten is a context in which children make important conclusions about school as a place where they want to be and about themselves as learners vis-a-vis schools. If no other objectives are accomplished, it is essential that the transition to school occur in such a way that children and families have a positive view of the school and that children have a feeling of perceived competence as learners.

An Ecological View of Transition

In an ecological model, "a child's transition to school is understood in terms of the influence of contexts (for example, family, classroom, community) and the connections among these contexts (e.g., family-school relationships) at any given time and across time" (Pianta, Rimm-Kaufman,

& Cox, 1999, p. 4). From this, "the transition to kindergarten is fundamentally a matter of establishing a relationship between the home and the school in which the child's development is the key focus or goal" (Pianta, Rimm-Kaufman, & Cox, 1999, p. 4). This model draws on the work of Bronfenbrenner (see, for example, Bronfenbrenner & Morris, 1998) and others in describing ways in which children influence the contexts in which they live and the ways in which those contexts also affect experiences.

The ecological model reflects the findings of our own research and provides a structure for investigating relevant issues, such as an individual child's perceived readiness for school, the impact of community resources on transition programs, the role of screening procedures for children about to start school, and the importance of bilingual programs. Considering the context of the transition to school enables us to reflect upon the changes within that context over time and the implications of these changes. For example, as home and school contexts come together, the relationship between early childhood educators and parents is highlighted. Some forms of relationships seem particularly conducive to children experiencing success at school, and others do not (Birch & Ladd, 1997). Just as changes in relationships between early childhood educators and parents can have an impact on children, changes in children can have an impact on relationships. A model that recognizes this fact provides a powerful tool for analyzing the complexity of the situation.

The Starting School Research Project

In New South Wales (NSW), Australia, the school year commences in late January and finishes in early December. The age by which children are legally required to start school is 6 years. However, children are eligible to start school at the beginning of the school year if they turn 5 by July 31 in that same year. A child whose birthday falls after this cut-off date starts school the following year. Because there is only one annual intake of students, children starting school can vary in age from 4-1/2 to 6 years. The first year of school, kindergarten, involves a full-day program operating throughout school terms. In some schools, kindergarten students finish school 30 minutes prior to other students, at least for the first term.

The Starting School Research Project, based at the University of Western Sydney, involves a group of researchers and a wide ranging Advisory Committee representing major early childhood organizations, early childhood employer groups, parent associations, school organizations, community, and union perspectives (Dockett, Howard, & Perry, 1999). Over the past three years, the project has investigated the perceptions and expectations of all those involved in young children's transition to school.

The initial phase of the project consisted of interviews with groups of children, parents, and early childhood educators—in both school and prior-to-school settings—to determine what is important to each of these groups as children start school. From these interviews and a detailed review of the relevant literature, an extensive questionnaire was developed. Over the period 1998-2000, this questionnaire was distributed to parents and early childhood educators across NSW (Perry, Dockett, & Howard, 2000; Perry, Dockett, & Tracey, 1998).

Together, the interviews and questionnaire responses have enabled the project team to describe the most important issues for children, parents, and educators as children start school. A series of categories of responses was devised using grounded theory that reflected the issues raised by respondents. These categories related to (1) the knowledge children needed to have in order to start school, (2) elements of social adjustment required in the transition to school, (3) specific skills children needed to have mastered, (4) dispositions conducive to a successful start to school, (5) the rules of school, (6) physical aspects of starting school, (7) family issues, and (8) the nature of the educational environment within school (Dockett & Perry, 1999b). A confirmatory factor analysis and review of national and international literature supported these categories. As an overview of the responses for different groups, the ranking of each category, from most to least mentioned, is listed in Table 1.

Table 1

Table 1

Overview of Categories and Response Groups

Children	Parents	Early Childhood Educators
Rules	Social Adjustment	Social Adjustment
Disposition	Educational Environment	Disposition
Social Adjustment	Disposition	Skills
Knowledge	Physical	Educational Environment
Physical	Family	Physical
Skills	Skills	Knowledge
	Rules	Family
	Knowledge	Rules

The focus of this paper is the way in which these responses have been used to develop a series of guidelines that promote effective transition to school, rather than on the results themselves. However, it is of relevance to give a brief overview of the results and the ways in which these have informed the development of the guidelines.

One key result is that what the adults—parents and educators involved in the transition to school—considered important varied considerably from what the children considered important. For example, we have reported (Dockett & Perry, 1999b) that young children focus mainly on the rules they

need to know in order to function at school, as well as how they feel about going to school (dispositions). Important in the latter category is the presence of friends and the expectation that school is a place to be with friends and to make friends.

Parents and early childhood educators, on the other hand, have emphasized the importance of children adjusting socially to the school environment. While parents and early childhood educators generally agreed that social adjustment was the most important factor in a child's transition to school, they emphasized different aspects of social adjustment. For early childhood educators, social adjustment involved children being able to operate as part of a large group, through sharing the teacher's attention, demonstrating independence as required, and being able to follow directions. Parents emphasized the importance of their children adjusting to other adults in an unfamiliar setting, through aspects such as being able to separate easily from the parent and join the teacher in class, and being able to interact and respond appropriately with nonfamilial adults. Parents were also concerned about the two-way nature of that interaction. A common question asked by parents was "Will the teacher like my child?" On one hand, parents were keen for their child to adjust to school and to "fit in" to the classroom. On the other hand, they were anxious that someone would appreciate the "specialness" of their child, and that someone would come to know and appreciate their child in a positive and responsive way (Dockett & Perry, 1999a).

Few respondents indicated that children's knowledge was a major issue in starting school. The group that mentioned knowledge most often was the children, with some commenting quite strongly that they could not start school until they could write their name or count to 10. Early childhood educators generally expressed the attitude that "we can teach them to write their name, but it's more important to have kids who can function in the classroom." Parents, too, were not overly concerned about the knowledge that children took with them to school. Of greater concern to them was whether or not they had chosen the optimal educational environment for their child.

Project Themes

The perspectives and experiences of children, parents, and early childhood educators have helped to shape some strong themes that underpin continuing aspects of the project. The first is a belief and commitment that starting school is not just an experience for the individual child. Rather, it is a community experience, involving a wide range of people. In addition to the child, the family and the community in which the family lives are involved. Educators in prior-to-school settings have an important role to play, and all school staff—not just the kindergarten teacher—are crucial to the effectiveness of the transition experience. In other words, starting school is a community issue and a community responsibility. When communities work together and when children realize that they have the support of groups within their respective communities, starting school can be a positive and exciting experience.

The second theme is that effective transition programs focus on relationships. While it can be important for children to possess and demonstrate some specific skills and knowledge, their ability to form meaningful relationships is crucial to their successful transition and influential in their later school careers (Ladd, Birch, & Buhs, 1999). The nature of relationships between and among children, families, peers, and early childhood educators has a significant impact on children's sense of belonging and acceptance within a school community. In situations where positive relationships had been established between families and schools, children, and teachers (and between educators in prior-to-school settings and schools), children, parents, and early childhood educators reported positive feelings about the transition to school. Where such relationships were not in evidence, hesitations, anxieties, and concerns prevailed.

It is generally the case that children who experience similar environments and expectations at home and school are likely to find the transition to school, as well as school in general, easier (Nelson, 1995). The converse also holds: that is, children who find school unfamiliar and unrelated to their home contexts tend to experience difficulty, confusion, and anxiety during the transition—particularly when the cultures in the home and school differ (Toomey, 1989). Effective transition programs that respect the different perspectives and expectations that converge when children start school and aim to develop an effective partnership between all involved can provide a vital connection.

Both of these themes reflect a broad view of transition experiences. In this view, there is recognition that there are many contributors to transition experiences and that the perspectives and expectations of each of these contributors shape those experiences in some way. For example, we know that children starting school bring with them a wide array of experiences and understandings. As a result, they experience the transition to school in different ways (Rimm-Kaufman, Cox, & Pianta, 1998). Similarly, early childhood educators and parents have varying expectations about the transition to school (Dockett & Perry, 1999a). Other factors, such as the amount and nature of family support for children starting school, teacher expectations about children, families and parent involvement (Entwisle, 1995), as well as children's expectations of school (Brostrom, 1995; Christensen, 1998) all have a significant impact on transition experiences and the ways in which these are provided and interpreted.

Guidelines for Effective Transition to School Programs

It is with this background that the Guidelines for Effective Transition to School Programs have been developed. The guidelines have been through several iterations, both at research forums and in extensive discussions with the Starting School Advisory Committee (Dockett, Perry, & Howard, 2000). Recognizing that effective transition programs are contextually relevant, the guidelines are not prescriptive. There is no sense that all schools or communities should have the same transition program. Rather, the expectation is that there are many ways to implement the different guidelines, and these different strategies should be encouraged as groups of people develop programs that are relevant, meaningful, and appropriate

within their own community. The aim of the guidelines is to provide a framework for developing and evaluating transition programs. The guidelines (Dockett, Perry, & Howard, 2000) argue that effective transition-to-school programs:

- establish positive relationships between the children, parents, and educators;
- facilitate each child's development as a capable learner;
- differentiate between "orientation-to-school" and "transition-to-school" programs;
- draw upon dedicated funding and resources;
- involve a range of stakeholders;
- are well planned and effectively evaluated;
- are flexible and responsive;
- are based on mutual trust and respect;
- rely on reciprocal communication among participants;
- take into account contextual aspects of community and of individual families and children within that community.

Using the Guidelines

During 2000-2001, members of the Starting School research team have been working with groups of parents and educators, and sometimes children, in 15 different locations across NSW. The aim of these groups is to bring together members of the community who are interested, and who have a role to play, in children's transition to school, to reflect on current practice in transition, and to use the guidelines to develop, implement, and evaluate contextually relevant transition-to-school programs. Within these locations, there is coverage of inner-urban, suburban, rural, and isolated communities; low, middle, and high socioeconomic status; non-English-speaking communities; Aboriginal communities; and services relating to the special needs of young children and their families. The range of school and prior-to-school services in each location varies considerably. However, the sample covers the full range of school services—government, Catholic, independent, distance education, disadvantaged schools—and prior-to-school services—long day care, family day care, preschool, mobile services, and distance education.

In the next section of this paper, we provide the theoretical basis for the guidelines, connections with the categories described earlier in the paper, and some examples of the ways in which the guidelines have been implemented by the working groups in different locations. The examples are by no means exhaustive. Rather they are used to illustrate some of the potential applications of the guidelines.

1. Effective transition programs establish positive relationships between the children, parents, and educators.

Effective programs are based on the establishment and maintenance of relationships between all parties: educators, parents, and children. While transition programs may focus on developing children's knowledge, understanding, and skills, they have, as their key function, a commitment to facilitating positive social interactions and relationships. Effective transition

programs encourage all participants to regard themselves, and their co-participants, as valued members of the school community.

Interviews with children have indicated that they place great importance on friends, and having friends, at school. Starting school was regarded as a chance to make "different friends" by "talking and playing nice to them." Children described liking school because they could "make up lots and lots of friends" and, conversely, described school as a sad place to be "when nobody would be a friend."

Some schools have introduced "buddy" programs, where children in the upper years of primary school are paired with children starting school. Buddies typically spend a lot of time together in the first few weeks of school, in the playground, and sometimes in integrated classroom experiences. In one school, year 5 buddies joined the kindergarten children for class play sessions, as well as during lunch and recess times. Teachers also have responded to children's focus on friends by planning time within their programs for small group and other experiences that provide opportunities for children to get to know each other and to make friends.

Relationships between and among all participants in the transition to school are important. Some schools provide opportunities for parents to meet when they take their children to school for the first time, some prior-to-school services arrange informal meetings among families whose children will be attending the same school, and some educators in prior-to-school and school settings meet on a regular basis to consider ways to promote continuity between settings.

Many parents appreciated opportunities to meet other parents, as well as teachers. However, not all parents reported positive experiences. Some described a sense of alienation as their child started school—particularly some parents who had been actively involved in the management of prior-to-school services and who then felt "shut-out" by the school administrative processes. One parent was dismayed that she "had been the treasurer of the preschool committee, used to dropping in as she needed, but now had to make an appointment to see her child's teacher."

Just as important are the relationships that exist among teachers in schools. School principals who value the work of their kindergarten teachers and support them in many ways have an important role to play in establishing the first year of school as an important one within the school community.

2. Effective transition programs facilitate each child's development as a capable learner.

Effective transition programs recognize the growth, development, and learning that has occurred before the child starts school as well as the impact of the child's environment on these. Effective transition programs recognize the role of the family and other educators and seek to collaborate in ways that build upon the child's experiences. Children are recognized as capable learners who bring with them a vast array of learning experiences and expectations, which may, or may not, reflect the knowledge, skills, and understandings reflected in the school environment.

While knowledge and skills did not rate in the survey or interviews as highly important when children start school, children clearly have constructed a great deal of knowledge and understanding, and acquired a great many skills, before they start school. The low rating of knowledge and skills does not necessarily imply that they do not matter. Rather, comments indicate that these can be taught at school in an effective manner, if other aspects of the starting school experience have been positive.

Many teachers in schools are keen to find out what children know and can do, and to use this information to guide curriculum within the first year of school. With parental permission, educators from prior-to-school settings and schools can meet to discuss any potential issues related to transition. The knowledge gained can be invaluable when children start school. In several areas, teachers in schools try to get to know the children and their families before they start school. Teachers can meet with children and their families through informal gatherings, such as welcome barbecues, or through visits to prior-to-school services. In one location, the kindergarten teacher spends some of her teaching release time each week visiting a local preschool and reading to the children. When the preschool children then start school, they see a familiar face. The teacher also has some background knowledge of the children, the issues they have addressed in preschool, and, in this case, their literacy interests.

3. Effective transition programs differentiate between "orientation-to-school" and "transition-to-school" programs.

Orientation programs are designed to help children and parents become familiar with the school setting. They may involve a tour of the school, meeting relevant people in the school, and spending some time in a classroom. Orientation programs are characterized by presentations by the school to the parents and children.

Transition programs may include an orientation time but tend to be longer term and more geared to the individual needs of children and families than orientation programs. Transition programs can be of indeterminate length, depending on a particular child or parent's needs. They recognize that starting school is a time of transition for all involved: children, families, and educators. Transition programs may be planned and implemented by a team of people representing all those involved in the change.

Opportunities to visit the school and to spend time with others at the school are important to children. Some children indicated that they started school on the day of their orientation, even if they had spent only a few hours at the school. Parents placed emphasis on getting to know the school and the school's expectations as they aimed to help prepare their children for school. Teachers too emphasized the value of programs that helped them to get to know children and parents they would be working with the following year. Most expressed a preference for ongoing transition, rather than orientation, programs.

Orientation and transition programs vary widely. Those reported by parents to be most effective for them and their children involve much more than a walk around the school and a talk from the principal about what is expected at the school. Of value to parents was the chance to ask questions,

discuss issues, and generally find out how school had changed since their own schooldays. The most effective strategy was to have several sessions, involving small groups of parents and children. As well, parents who had a chance to observe their child in a school setting felt that they were better equipped to make decisions about whether or not the child was "ready" to start school. Teachers also reported a similar view. Parent groups at schools are often involved in these programs. In one instance, parents designed and implemented a survey of other parents, seeking reactions to transition programs. Their results will feed back into the planning of future transition programs.

Programs vary according to the context—for example, some schools invite parents to sessions in the evenings, as a way of catering for working parents, and others provide child care for younger children during the day, so that parents can attend the program with the child who is about to start school.

Several schools have promoted parent involvement in transition programs. However, there are few examples of children having any input into transition programs. Some innovative possibilities to explore include inviting children who are about to start school and those already at school to discuss issues they expect to face, or faced, when starting school and to seek their help in designing a program based on what they think new children to the school should know.

4. Effective transition programs draw upon dedicated funding and resources.

A range of resources is required for transition programs to function effectively. These include people, time, materials, and space in which to operate the program. Often, creative and collaborative approaches are used by staff in schools and prior-to-school settings to identify ways in which resources or funding can be used to support transition programs. Appropriate funding and resources may come from a number of sources.

Early childhood educators, in particular, have raised the issue of resourcing programs, reporting large amounts of organization occurring out of school hours and a sense of working alone to promote transition programs. Parents have reported both positive and negative reactions to programs and the associated resources. One parent reported feeling overwhelmed at her son's orientation, where the new group of 25 children and their parents had joined the existing class of 25 children in a rather small classroom: "The crush, the noise, was overwhelming for me, let alone J. And all because the school didn't have another room we could use." Other parents have appreciated a chance to move around schoolrooms and playgrounds as a way of seeing what the school offers. In one program, children "felt special" when they were issued a T-shirt as part of their transition package.

The injection of money into programs is a rare, yet welcomed, occurrence. It signifies to the community the worth and value of transition programs. Financial and other resources are essential to release staff from teaching responsibilities in order for them to visit schools and prior-to-school settings and to provide support for transition programs. The effective

management of resources is often the key to an effective transition program. In one location, an impressive coordination of resources has meant that children who are about to start preschool visit the center on the same day that children from the preschool visit the school they will be attending the following year. In each location, the "new" children have a chance to experience the environment without being overwhelmed by the children who are already in attendance. Further, the educators in both settings are able to concentrate on the needs of the "new" children.

5. Effective transition programs involve a range of stakeholders.

Educators, parents, and children should have input into the program. Educators from prior-to-school settings as well as teachers of kindergarten and other grades and school staff, such as community languages teachers, librarians, staff of the out-of-school-hours program, support/clerical staff, and general staff, can all make valuable contributions to a transition program. Parents know their children well and can provide a great deal of valuable input to a transition program. Young children too can make a significant contribution as they indicate areas of interest or concern. Educators in prior-to-school settings also know the children well. They may have developed comprehensive records as part of their planning process and often have become trusted friends of the parents and the child in the years before school. Further, in some contexts, members of the broader community may be involved with the program.

Some of the most positive descriptions of starting school experiences came from those involved in collaborative programs. Parents described being pleasantly surprised that prior-to-school educators and school teachers would work together on programs and reported their children's sense of amazement when the two sets of early childhood educators were seen working together.

Effective transition programs do not rely on one individual. Rather, they involve, at the least, parents, children, and educators. Ideally, there are connections between prior-to-school and school settings as well. Involving a range of people does not mean that they all do the same thing. In some situations, parents with particular skills and abilities use these to great effect in transition programs—for example, writing newsletters to other parents, facilitating discussions, or spending time with individual children. In one rural location, the involvement of the bus driver has had a major impact on the transition program, with parents, children, and teachers now feeling much more comfortable about the time children spend on the bus traveling to and from school. Many children will spend several hours on the bus each day, and a comfortable relationship with the bus driver makes this experience more pleasant. Similarly, staff who work in out-of-school-hours care indicate that involvement with transition programs helps them get to know children and families and also to work with others in a consistent way.

Different communities will have different stakeholders who could be involved in the transition to school. In some indigenous communities, it is vital that the programs have the involvement of elders or other respected members of the community.

6. Effective transition programs are well planned and effectively evaluated.

Effective transition programs are based on detailed planning and have clearly defined objectives that have been developed in collaboration with all of the stakeholders. The effectiveness of the program is assessed in relation to these objectives. It is important that stakeholders have opportunities to be involved at all levels of planning, implementation, and evaluation and that their perspectives be accepted.

Children, parents, and early childhood educators have different views about effective transition-to-school programs. Attaining a sense of working together involves spending some time establishing what is important within a particular community or context and then working towards that goal. Parents of children with special learning needs report that long-term planning, focusing on the establishment of realistic and appropriate aims, is a valuable part of any transition program. Parents and early childhood educators also indicated that they appreciated the opportunity to evaluate programs. Children also provided some useful feedback about the programs they attended. This feedback ranged from the observation that "teachers yell" to the comment that "I think school is better than preschool because there's so many people and space for all of them."

Planning and evaluation can take many forms. In some settings, a short but intensive period is used to plan the program; in other settings, planning occurs over several terms. Collaborative relationships often take time to develop, but once in place, these relationships can provide the basis of an effective planning group over the longer term. Evaluating programs is essential, both in establishing the credibility of the programs and in demonstrating the value of programs to the wider community. It is important to agree on the types of data to be reported and to use these data appropriately. Examples of data that could be used to inform decisions about the program include (1) children's comments and drawings; (2) parent surveys and comments; (3) indications of children's well-being at school, such as attendance patterns, interactions, and familiarity and comfort in the environment; (4) teachers' reactions; and (5) observations. Data can be documented in many ways, including photographs of children/parents/teachers at school, children's drawings or constructions, recordings of children's narratives, and letters from parents. As important as the information that is recorded is the way it is interpreted and used. In any planning and evaluation, it is important to consider the perspectives of all those involved, rather than to interpret the information through one lens only.

7. Effective transition programs are flexible and responsive.

Well-planned programs can be responsive to the changing needs and interests of participants. As each of the participants gets to know the others better, needs will change and areas of interest and concern will emerge. Effective programs recognize that flexible means are required to involve different groups of people.

One of the concerns raised consistently by parents related to their role at school. Many were familiar with what was expected at preschool or day care

but were unsure of what their role could be in the school setting. Some were concerned that they could not get to school during the day, and their absence would be taken as a sign of disinterest. Others were worried that they may not be able to help children with homework. Schools attempted to alleviate these concerns when they organized meetings in ways that were flexible and responsive, both in their timing and in the issues covered throughout the program.

Many people within communities are keen for their children to succeed at school, but they find it difficult themselves to access the school. This difficulty may arise because of their own negative memories of school, because they work hours that prevent them getting to the school during the day, because they live some distance from the school and either do not have transport or the time to travel to the school on a regular basis, or for many other reasons. It cannot be assumed that these people have no interest in the school or no interest in supporting their children as they start school. Effective transition programs respect these differences and respond to them in a flexible manner.

One example of such flexibility and responsiveness can be drawn from one relatively isolated community. For families in outlying areas of this community, access to preschool involves a mobile preschool setting up in the local area, at most one day every two weeks. Parents often asked staff from the mobile preschool about their child's readiness for school. Each of these families had limited means of comparing their child with others and were seeking some reassurance that the children would be successful at school. In response to this concern, some parents, preschool staff, and other early childhood educators—including school teachers—prepared a brochure outlining some of the things parents could do with their children to help prepare them for school. They were keen to avoid a checklist of skills and focused more on the types of interactions and experiences that would help children feel comfortable at school.

8. Effective transition programs are based on mutual trust and respect.

Where programs evolve and operate in a climate of trust, and where the perspectives of all participants are respected, open communication is likely to develop. A climate of trust and respect enables all involved to feel valued within the school community. Just as children function best in situations where they feel safe—psychologically as well as physically—adults who feel their ideas and views will be listened to are likely to contribute to the program in significant ways.

In interviews, children described a gamut of feelings as they started school. They also expressed great trust in teachers who took the time to listen to their concerns. For example, Joanne described feeling "a bit embarrassed" at starting school because there were "too many people standing around looking" at her. She felt much better in the classroom when she could talk with the teacher and the teacher could respond to her.

Trust and respect are conveyed in many ways. Being prepared to listen to alternative points of view is an important start to this process. Educators, families, and children all need to feel trusted and respected. In several transition programs, a great deal of effort has gone into promoting a climate

of trust and respect among prior-to-school educators and teachers in schools. Despite early childhood educators being employed in both settings, often with the same training, there is a definite gulf between the two sectors. In NSW, this situation is exemplified by educators in most prior-to-school settings being responsible to one government department and teachers in the early years of school being employed by another.

Where transition programs involve educators from both settings, and where there is clear respect for what the other does, meaningful professional relationships can exist. In some instances, such respect has been built up through ongoing contact. This contact has involved visiting the different settings, sharing information as appropriate, involving staff from both settings in professional development programs, and the like. One concrete example of where such trust is beneficial is in the transfer of information about individual children from one setting to another. With parental permission, teachers in schools can learn a lot about a child by accessing relevant information held by staff in prior-to-school settings. However, for this strategy to be meaningful, teachers in schools and educators in prior-to-school settings must have a relationship of trust and respect built upon an acceptance of the professionalism of both groups.

9. Effective transition programs rely on reciprocal communication among participants.

Open and reciprocal communication among children, parents, and early childhood educators is an important element of effective programs. Reciprocal communication recognizes that parents, as well as educators, know a great deal about the children in their care. Children too know a lot about themselves, how they learn, and how they respond in certain situations. Collaboration based on open communication establishes a context where the educational needs of the child are uppermost in the minds of all involved. Communication between staff of schools and prior-to-school settings is also valuable but must be guided by legal as well as ethical considerations as to what information about children and families may be shared.

Often, children are eager to be involved in meaningful communication about school. Adults need to be prepared to engage in reciprocal communication with children, and to expect that this experience can be worthwhile for themselves as well as the children. In one instance, Brett shared his concerns about starting school, where he expected that "a boy might push me over on the cement. When you are at school, they might push you over because you are little and they hurt you." Recognizing that these concerns are real and responding appropriately provide the basis for reciprocal communication.

Avenues for two-way communication in many communities will be enhanced through the involvement of bilingual educators, parents, and, sometimes, children. The languages and cultures of the community in which the school is located need to be reflected in the group responsible for the transition program.

Sometimes it is easy to recall examples of miscommunication rather than effective communication among those involved in starting school. However,

even a focus on these negatives can highlight the value of reciprocal communication. This form of communication is integral to several of the other guidelines. For example, it is most likely to occur in a context of mutual trust and respect, and where positive relationships exist.

Effective transition programs rely on two-way communication—that is, more than the school sending home letters about what should happen and more than families only interacting with staff at the school when a problem is perceived. While newsletters and notice-boards can be useful, they promote one-way, rather than reciprocal, communication. In one effective transition program, reciprocal communication was promoted by the involvement of a bilingual community worker. This person had credibility in the local community and was able to facilitate discussions between teachers and parents about relevant issues.

10. Effective transition programs take into account contextual aspects of community and of individual families and children within that community.

A contextual framework focuses attention on the ways in which children are influenced by, and in turn influence, the context in which they exist. In this framework, the responsibility to become "ready" for school rests not with the individual child but with a community.

The contexts in which children live are influenced by issues such as socioeconomic status, geographical isolation, cultural diversity, parental work patterns, language backgrounds, disability, and other special needs. While it is important that this diversity is reflected at a general level in the transition program, it is imperative that differences among individuals and individual families within each community are recognized and valued for the richness they bring.

Given the diversity of contexts and relevant issues and interactions within these, we should see a diversity of transition programs in the project's research sites. While several of the issues identified by each of the working groups are similar, the ways in which they choose to respond to these differ considerably. For example, 8 of the 15 groups have identified communication between educators in prior-to-school and school settings as an area they would like to strengthen. The ways in which they have chosen to pursue this same issue include (1) arranging meetings at different venues so that educators can become familiar with the different settings, (2) having informal discussions after school hours, (3) spending teaching release time in different settings, and (4) writing to educators individually to share information. We regard the facility to design a program that reflects the context in which it occurs as essential to the success of transition programs.

Problematizing Transition

The current focus of the Starting School Research Project is working with different community groups to evaluate and strengthen transition-to-school programs across the state. It is rewarding to be involved with groups of people who have a strong commitment to the well-being of young children and their families as they start school. It is also challenging to encourage people to move beyond the expectations and some of the taken-for-granted practices—that is, to problematize transition. Through the process of questioning what we know and how we know it, we can come to

reconceptualize practices that seem to be taken for granted (MacNaughton, 2000).

Two theoretical issues have emerged from the working groups: the trend to consider transition programs in terms of skills and abilities, and the curriculum of transition. The first of these is the focus on readiness for school as a series of isolated skills and abilities. It is quite easy to buy books detailing lists of skills that children should be able to demonstrate in order to be "ready for school" and to form the impression that children who cannot do any or all of these should not be sent to school. This focus is reiterated in the requests to the project team from parent groups, schools, and prior-to-school settings to talk with groups about getting children ready for school and to talk about how children's readiness for school can be addressed. It should be noted that in NSW, there is no schedule to assess children's school readiness and no requirement that any such assessment be completed. The only children for whom assessment is advised are children who are entering school on the basis of giftedness or special learning needs. One consequence has been that some schools and prior-to-school services develop their own checklists that tend to list easily measurable skills in isolation.

There is no doubt that some skills and abilities make the transition to school easier for all concerned, and we are in no sense saying that these should not be learned or demonstrated at some time. However, our research indicates that children, parents, and early childhood educators are more concerned about social issues, such as adjustment and relationships, and ways in which these can be promoted. As well as the anecdotal evidence about the benefits of "feeling like you belong" in a particular context, having a sense that "you are valued" and "your views are respected," there is growing research evidence that successful transitions to school are based substantially on social skills (Ladd, Birch, & Buhs, 1999; McClelland, Morrison, & Holmes, 2000) and facilitated by a series of responsive relationships.

The second issue relates to the curriculum of transition. Traditionally, there has been a sense that it is the responsibility of the school to induct children into the ways of the school. Our ongoing work with groups leads us to challenge this assumption and place the responsibility for transition programs in the broader community rather than with the school alone. There is no doubt that schools should be involved in transition programs and maybe even play the leading role; however, many people outside the school also have a major influence on the ways in which children participate in school and school-related experiences. These groups include the children themselves, family and friends, educators in prior-to-school settings, health professionals, community workers, and community elders. No doubt many other groups have significant contributions to make in different contexts. In many instances, members of these groups have already formed relationships with the child and know a great deal about the child and his or her interests and abilities.

This view recognizes that dispositions, values, feelings, attitudes, and understandings are equally as important as skills and knowledge. For example, both adult and child participants in transition have identified

positive dispositions about school as one of the key factors in a successful transition to school (Dockett & Perry, 1999a). If children learn dispositions from being around people who hold similar dispositions (Katz & Chard, 1987), then it is important that all involved in transition experiences reflect the positive aspects of starting school. They are likely to do so when they are actively involved in transition experiences or where their views have been sought and considered in the planning of transition experiences. The entire community benefits when children want to be at school, regard school as valuable, and experience school success.

In promoting transition programs that focus on relationships and extend beyond the school gate, we believe it is essential that the views and perspectives of children are considered. It can be tempting to regard children as the recipients of transition programs rather than as active participants who are shaped by and who shape the experiences. One of the aims of the Starting School Research Project is to reject the view that transition programs happen to children. We believe that children can and do make valuable contributions to transition programs and that listening to their views, responding to their challenges, and respecting their existing understandings can be an educational experience for all concerned.

Conclusion

In each of the research sites, members of the research team report that the Guidelines for Effective Transition to School Programs provide a sound basis for discussion and that this discussion supports the underlying themes of these guidelines: that positive and responsive relationships are vital to successful transitions and that effective transitions involve communities of individuals rather than individuals in communities.

The opportunity to work with diverse groups of people in different settings and contexts has enabled both the research team and those involved in the location groups to question some of the assumptions underlying transition programs and to work through these issues. The solutions and strategies that emerge from these interactions will continue to vary as each group grapples with the idiosyncrasies of their contexts. As the location groups continue to examine and evaluate their transition-to-school programs, we look forward to investigating the many and varied ways in which children, families, educators, and the broader community can benefit from their membership in school communities.

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Computer Use in Preschools: Directors' Reports of the State of the Practice

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Abstract

For a number of years, authorities in the field of early education have questioned whether computers should be used in classrooms of young children. In response to the controversy surrounding computers and young children, this study investigated directors' reports of the use of computers in Texas child care facilities. Directors of licensed child care programs responded to a survey of 12 questions about computer use in their centers. Results from the majority of respondents indicated that preschool children begin using computers in child care centers between ages 2 and 4 years, regardless of socioeconomic status. Directors responded that the most important goal in children's use of computers was to extend concepts learned in the classroom. The preferred method of instruction in computer use was individual instruction; the most common form of supervision was an adult monitoring a specific classroom zone. The most common placement of computers was in a special learning center in the classroom.

Introduction

Philosophically, computer use with young children has created debate among early childhood educators and other professionals for decades. Since the time computers were introduced into America's school settings 25 years ago, questions such as, "Doesn't computer use with young children create passive learners?" "Shouldn't children have concrete objects for learning?" or "Don't children have difficulty manipulating computers?" have plagued experts. Controversies over the question of the role of technology in young children's learning have polarized the field, and the role of technology is still debated.

A number of early researchers found that computer use by young children had positive learning benefits. Cochran-Smith, Kahn, and Paris (1988) posit that children's writing abilities are enhanced with technology. Their only concern is that some children use the keyboard ineffectively and have misconceptions about how print should appear on the page. Hess and McGarvey (1987) note achievement in mathematics, problem solving, and scientific skills among children. Research completed by Weir, Russell, and Valente (1982) suggests that computers facilitate the education of children with disabilities.

Other early educators doubt the value of technology's usefulness with young children. Wardle (1999) believes that computers do not need to be part of children's foundation for learning. She asserts that the early years are necessary for establishing a foundation for success later in life, and

computers have limited value in doing so. Cordes and Miller (2000) report that an international group of physicians, scientists, and researchers called for a moratorium on computers in preschools and early elementary grades. They believe that computers interfere with healthy physical and mental development. Hohmann (1998) recommends that computers not be used with children younger than 3.

Others tout the benefits of computer use with young children. Clements (1999) maintains that "Technology can change the way children think, what they learn, and how they interact with peers and adults" (p. 1). He also recommends technology as a tool for improving children's learning through exploration, creative problem solving, and self-guided instruction (Clements & Samara, 2003). Haugland (2000a, 2000b) supports teacher implementation of technology in classrooms with children 3 and 4 years old if they are allowed plenty of time to experiment and explore.

The overarching issue appears to be whether computer use with young children is developmentally appropriate. The National Association for the Education of Young Children (NAEYC) has defined developmentally appropriate computer use with young children. In their position statement "Technology and Young Children-Ages 3 through 8," NAEYC (1996) notes that professional judgment is required by teachers to determine whether technology is age appropriate, individually appropriate, and culturally appropriate for the children in their care. NAEYC recommends the integration of technology into the learning environment as one of many options to support children's social and cognitive abilities but cautions that computers should not replace other valuable learning centers, such as blocks, art, sand or water play, books, dramatic play, or exploratory areas in the classroom.

NAEYC calls for all children to have equal access to technology but recommends that teachers ensure that technology experiences are monitored to avoid exposing children to stereotyping of groups and violence. NAEYC suggests that teachers work with parents to advocate for more appropriate technology applications for children. NAEYC also recognizes and supports the value that technology adds to early childhood professional development.

Mark Ginsberg (2001), executive director of NAEYC, presents guidelines to teachers and parents for protecting young children from hazards associated with computer use and access to the Internet: Children need supervision and advice about computer use; rules should be developed for computer use; and adults should be present when the computer is used, to promote interactive discussion about what children are viewing. Ginsberg's perspective is that the computer is a tool that must be used just like any other classroom material or equipment, with judgment and moderation.

A number of studies have examined how technology affects children with special needs. Malone and Langone (1999) provide evidence that computers promote a virtual play environment for children with special needs. Software is now available that provides computer experiences compatible with the characteristics of play (nonliterality, positive affect, flexibility, means over ends locus, and spontaneity). Mioduser, Tur-Kapsa,

and Leitner (2000) recognize the potential for instructing children with learning disabilities in early reading skills (phonemic awareness, word and letter recognition). Bush, Huchital, and Simonian (2002) report that research initiatives at the STARBRIGHT Foundation support computer technology with young children with special health care needs. Their technology is designed to help children with chronic health conditions (such as cystic fibrosis) cope with and manage their treatment regimens.

A three-year project at the Center for Best Practices in Early Childhood Education at Western Illinois University (Hutinger & Johanson, 2000) provides additional support for using computer technology with young children with disabilities. Their study emphasizes access to computers as an avenue to social interaction among children, working cooperatively, gaining confidence in themselves, controlling their environments, and making gains in language and communication. Hutinger and Johanson, supported by research by Clements (1999), point out that the enabling component of computers assists children in transforming concrete ideas into symbolic form.

Fischer and Gillespie (2003) describe their research in a Head Start classroom. Their findings suggest that (1) open-ended software programs encourage children to explore and extend beyond their thinking, (2) computers are just another option in the classroom, (3) computers help bridge concrete and abstract thinking, and (4) technology stimulates cooperative behaviors among children. They also report that the teacher encourages children to help others who may be struggling with computer use.

Given the disparate views regarding the wisdom of using computers with young children philosophically, this study investigates directors' reports of actual practice in using computers in child care. The purpose of this study was to determine how widely computers are used in licensed child care centers in Texas. A survey was mailed to directors of licensed child care facilities in Texas with a return envelope to encourage response from directors. Questions asked about the ages that children begin using computers, the ratio of computers per child, the type of computer instruction provided to children, supervision of children, access to computers by children with disabilities, availability of assistive devices, Internet access, classroom placement of computers, the goals of computer use in centers, and whether children had access to computers at home.

Method

Participants

Data from the Texas Department of Human Services was provided through a file of 8,003 licensed child care facilities in the state. Surveys were mailed to a sample of 800 child care directors. Participants were selected randomly within a stratified sample, with every tenth facility within a zip code area selected for participation. Eight hundred surveys were mailed to child care directors, with 257 surveys returned. Forty-six (5.8%) of the surveys were received with "Return to Sender" indicated, and 211 (26.4%) were completed and returned. Zip codes of surveys that were

returned were a representative sample of regions in Texas. The distribution of income in returned surveys was similar to that of the state; however, fewer participants had annual incomes over \$100,000. This difference likely reflects the low use of child care centers by families with annual incomes over \$100,000.

Based on the demographic data from zip codes of participants returning surveys, 63.3% were classified as "In Urbanized Area," 23.5% were classified as "In Urban Cluster," and 13.1% were classified as "Rural" (U.S. Census Bureau, 2000). These data can be compared with the population data of Texas. In Texas, 71.0% of the population were classified as "In Urbanized Area," 11.6% were classified as "Outside Urbanized Area," and 17.51% were classified as "Rural" (U.S. Census Bureau, 2000). In the survey sample, participants classified as "In Urbanized Area" were somewhat underrepresented, and those classified as "In Urban Cluster" were overrepresented in comparison to the state of Texas. All classifications are based on population density according to the U.S. Census Bureau.

Instrumentation

Questions on the survey were based on a review of the literature and interviews with local child care directors. The literature on the use of computers with preschoolers addresses the age of beginning computer use, placement of computers in centers, and learning from peers (Haugland, 2000b). Questions regarding computer use by preschoolers with disabilities were included because of the legal requirements for equal access in the Americans with Disabilities Act (1990) and the requirement to provide assistive technology in public schools in the Individuals with Disabilities Education Act (Assistance to States, 1999). Other questions were included based on the investigators' observations of practices in local preschool programs. Questions were developed to probe the following areas: (1) demographic variables, (2) age at which children begin to learn computer use, (3) the extent to which computers are available, (4) instructional arrangements for computers, (5) placement of computers in the classroom, (6) use by children with disabilities, (7) the goals of computer use, and (8) preferred software.

A pilot questionnaire was developed and mailed to a sample of 10 local directors, who made suggestions for improvement. Initially, all questions required one answer; several directors recommended that the survey provide for multiple answers for some items. When examining the goals of computer use, directors recommended adding the following options: "to teach basic skills needed in school and life" and "to extend concepts taught in the classroom." A question regarding the ratio of staff to children was omitted based on the feedback from several directors that this question was unclear; state requirements stipulate different ratios of supervision for different age groups. Additionally, the term "software" was suggested rather than "computer programs." Finally, several directors recommended that the survey be restricted to one page, front and back, because directors are very busy with the management of their centers. The survey instrument is shown in the appendix.

Procedures

Following revisions of the pilot survey, the survey was mailed to the random sample of 800 directors of licensed child care centers in the state. The database of licensed child care facilities was sorted by zip code, and every tenth center was selected for the survey. Results of returned surveys were entered into the database for the Statistical Package for the Social Sciences (SPSS).

Pearson product-moment correlations were used to determine the relationship between family income and the age of beginning computer use of children in child care centers, the ratio of computers to children, and the percentage of children using computers at home. In this case, the predictor variable was mean family income, and the criterion variables were age of beginning computer use, ratio of computers, and percent using computers at home. Alpha was established a priori at .05. All data were analyzed using SPSS.

Finally, descriptive statistics were used to describe the goals of using computers, methods of teaching computer use, methods of supervision, placement of computers, use of computers by children with disabilities, and the use of computers at home. Additionally, programs preferred by boys, programs preferred by girls, and programs preferred by both boys and girls were tallied for descriptive data on preferred software.

Results

When examining mean family income as a predictor of computer use, only one significant correlation was found. Mean family income was a predictor of computer use in the home ($r = .562$, $p < .001$), but it was not a predictor of the age at which children began using computers in the center ($r = .085$, $p = .113$) or the ratio of computers per child in the center ($r = .068$, $p = .196$).

Results of analysis of variance yielded no significant differences between income levels in the child care center in relationship to directors' goals for children using computers. Mean family income of children within the center did not appear to be related to directors' ratings of the importance of various goals in using computers within the center. Directors rated the goal of extending concepts taught in the classroom highest when comparing means of the six goals rated in this study. The second most important goal was allowing children to explore and play with technology. Next in importance was teaching basic skills needed in school and life. The means of each of these top three goals were rated as "important." The mean of the goal to provide appropriate use of free time was rated as "important." Finally the means of increasing enrollment for the center and rewarding good behavior were rated as "somewhat important." Of these, the goal rated lowest was to reward children for good behavior.

The preferred methods of teaching children to use computers were through individual instruction, followed by learning by observing other children. The third most frequent method of instruction was peer instruction, followed by group instruction. The least-used methods for teaching children

to use computers were learning by observing adults and through tutorial software.

Directors reported two methods of supervision of computer use most frequently: adults visually monitoring the zone where computers are used and independent use of computers in centers. The third ranking method of supervision was with adults beside the children as they used computers. The vast majority of child care centers (88%) in this study reported that Internet access was not available to children at the center. The few that did provide opportunities for Internet access for the children did so with an adult monitoring a group of children. Four directors reported that children used the Internet with a filter, and three directors reported Internet use with one-to-one supervision. Finally, no one reported that children were allowed to use the Internet without supervision or a filter.

Computers were most often placed in learning centers within the classroom and occasionally in a room separate from the classroom. Most of the directors (62.8%) reported that there were no children with disabilities at their centers; when children with disabilities attended a child care center, they most often used computers in the same way as other children. Only four directors reported that computers had been adapted for children with disabilities. No directors reported that children with disabilities did not use computers. The most frequent age for beginning computer use in child care centers was between the age of 2-3 years (39.5%), followed by 3-4 years (17.6%), less than 2 years (16.6%), and 4-5 years (4.9%). Also worthy of note in this study is the fact that 21.5% of the child care centers do not provide for computer use at all.

Although most child care centers in this study provide computers for young children, these computers generally were shared with a large number of children. Most centers (47%) reported that there was one computer for more than 30 children; 38.75% reported having one computer for every 20 to 30 children. Only 7.5% reported having one computer for every 5 to 10 children, and 6.25% had one computer for every 10 to 20 children. The remaining directors (.5%) were unsure of the ratio in their centers.

Directors completing the survey responded to a question regarding the percentage of the children in their centers who used computers at home. Results were fairly evenly distributed. Fifty-nine directors reported that 25-49% of their children used computers at home; 52 reported that 50-74% of their children had access to computers in the home. Fifty directors reported that 75-100% of their children were able to use computers at home; 41 directors estimated that 0-24% of their children had this access. Three directors did not answer this question.

Few directors reported differences regarding genders when asked to list software preferred by boys and software preferred by girls. Four directors listed Tonka Construction as "preferred by boys"; five listed art/drawing programs as "preferred by girls." The top programs listed as "preferred by both genders" were Jumpstart programs (17) and Reader Rabbit (18). Most directors did not answer this question, leaving it blank, perhaps because of the administrative nature of their role, rather than direct supervision of the content of the programs used by children.

Discussion

Implications

Regardless of the controversy of whether computers are appropriate for preschool classrooms, computers are being used in the majority of child care centers that were surveyed. Although some authorities in the field of early education believe that computer use interferes with development, the child care directors that responded to this survey did not adopt this position.

Recommendations about computer use with preschoolers clearly state that children should be monitored while they are on the computer (NAEYC, 1996). The survey of Texas child care center directors suggests that monitoring is a common practice in their classrooms, with adults visually monitoring where computers are used. Only a few of the child care directors reported that Internet access was available to children in their centers, and those centers that did have Internet access allowed children access only when an adult was present.

Mean family income was a predictor of computer use in children's homes, but it was not related to the age at which children use computers in child care centers. This result suggests that personnel in child care facilities are taking the leadership role in enabling children to access technology that otherwise might not be available in the home. For children from low-income families, the access to computers in preschool classrooms provides them with skill acquisition unavailable in their homes. The directors' goals in providing classroom technology were not related to family income of children in their centers.

The primary goals listed by directors were more aligned with developmentally appropriate practice as recommended by NAEYC. The most important goals were (1) extending concepts, (2) promoting exploration and play, and (3) teaching basic skills needed in school and life. Rated of lesser importance were: (1) using computers for free time, (2) increasing center enrollment, and (3) rewarding good behavior. The directors generally favored developmentally appropriate use of computers for children's cognitive development. Classroom computers were not viewed as public relations tools or electronic babysitters. The fact that software showed few gender differences is likely because software for preschoolers is not designed to be gender specific. Also, most directors left this item blank, so the sample was small.

Limitations

Although this study indicated that computers are widely used in child care centers, a number of issues need to be considered. Although Texas is a large state with a diverse population, computers may not be as widely used in other states with different demographic, economic, or cultural variables. The sample in this investigation was representative of the economic strata in Texas and the sample was randomly drawn, but the sample size was small in comparison to the more than 8,000 licensed child care centers in the state. Although socioeconomic status and parental educational level are highly correlated (Krieger, Williams, & Moss, 1997; Sewell & Hauser, 1975), the study did not probe the mean educational attainment of the parents of

children in child care centers. Other variables that were not addressed in the survey were the NAEYC accreditation status of centers, receipt of federal funds, the curriculum used in centers, the percentage of children in centers from underserved populations, and whether or not centers were affiliated with a franchise. Additionally, there is a possibility that the directors of centers where computers were not used did not return the survey. Finally, the survey is based on directors' perceptions and reports, which may differ from actual classroom practice.

Recommendations

A national survey of child care centers would be helpful for understanding the degree to which computers are used in the United States, as well as other issues surrounding how they are used in preschool classrooms. Some of the variables that could be included in future surveys include parental educational attainment, center accreditation status, receipt of federal funds, the curriculum used in centers, the percentage of children in centers from underserved populations, and whether centers were affiliated with a franchise.

Interviews with child care directors and staff can increase the body of knowledge of how computers are used by preschool children. Qualitative research with parents and teachers of young children is needed to assist in understanding their goals and beliefs about computer use with preschoolers. Actual observations of children in child care centers would reveal how computers are actually used, as opposed to their use as reported by directors. Finally, longitudinal research is needed to investigate the effects of early computer use on children's social and cognitive development.

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Appendix

Survey of Computer Use in Texas Child Care Centers

Please complete the following questions regarding computer use in your center:

- 1. At what age do children begin to use computers in your center?**
 - a. under 2 years
 - b. 2-3 years
 - c. 3-4 years
 - d. 4-5 years
 - e. not available-please skip to question 11
- 2. What is the ratio of computers per child in your center?**
 - a. 1 computer for every 5-10 children or fewer
 - b. 1 computer for every 10-20 children
 - c. 1 computer for every 20-30 children
 - d. 1 computer for over 30 children
 - e. not available
- 3. How are children taught to use the computer at your center? (please circle all that apply)**
 - a. Observing other children
 - b. Observing adults
 - c. Tutorial software
 - d. Group instruction
 - e. Individual instruction
 - f. Peer instruction
- 4. What is the most common form of supervision of children using computers?**
 - a. adults visually monitor zone where computers are used
 - b. adults are beside children as they use computers
 - c. children use computers independently in centers or the classroom
- 5. How are computers placed in your center?**
 - a. in learning centers in the classroom
 - b. in a separate room from the classroom
 - c. other (specify): _____
- 6. How do children use the Internet at your center?**
 - a. with 1-1 adult supervision
 - b. with adult watching a group of children
 - c. independently with an Internet filter
 - d. independently
 - e. Internet access not available to children
- 7. How are computers used in your center with children who have disabilities?**
 - a. used in the same way as other children used computers
 - b. computers have been adapted for children with disabilities
 - c. computers are not used with children in our center who have disabilities
 - d. no children with disabilities are enrolled at our center

8. What peripheral devices are used with children with disabilities? (please check all that apply)

<input type="checkbox"/> trackball	<input type="checkbox"/> mouse	<input type="checkbox"/> touch screen
<input type="checkbox"/> adapted switch	<input type="checkbox"/> special keyboard	<input type="checkbox"/> none used
Other: (specify) _____		

9. Please rank the goals of using computers at your center by checking the appropriate box:

Goal	Not Important	Somewhat Important	Important	Very Important
To provide appropriate use of free time				
To increase enrolment for the center and public relations				
To allow children to explore and play with technology				
To reward children for good behavior				
To teach basic skills needed in school and life				
To extend concepts taught in the classroom				

10. Please list the most popular software/computer programs used at your center:

Preferred by boys	Preferred by girls	Preferred equally by both genders

11. Estimated percentage of children at your center who use computers at home:

0-24% 25-49% 50-74% 75-100%

12. Estimated average annual income of families of children at your center:

<input type="checkbox"/> <\$15,000	<input type="checkbox"/> \$15-24,999	<input type="checkbox"/> \$25-49,999
<input type="checkbox"/> \$50-74,999	<input type="checkbox"/> \$75,000-99,999	<input type="checkbox"/> \$100,000 or more

Please return survey in stamped envelope today.
Thank you!

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Young Children's Cognitive Engagement during Classroom Book Reading: Differences According to Book, Text Genre, and Story Format

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Abstract

This study examined young children's cognitive engagement during classroom book reading with different types of books in Greek kindergarten schools. Twenty teachers read four books—two fiction (familiar/unfamiliar story format) and two information books (expository/narrative text). As expected, children's and teachers' cognitive engagement was highly correlated. Overall, most group discussion was of low cognitive demand, focusing on text recall and labeling. Information books and expository texts prompted more high cognitive demand discussion, while fiction books and narrative texts of information books prompted more low cognitive demand discussion. No differences on the cognitive level of discussion between the familiar and unfamiliar fiction books were found. The outcomes are discussed in terms of young children's development of representational abilities.

Introduction

Book reading with young children has been the focus of much research. The majority of such research has focused on the development of early literacy concepts, mainly related to the decoding aspect of print and the development of oral language skills (see reviews in Scarborough & Dorbich, 1994; Bus, Van Ijzendoorn, & Pellegrini, 1995; Blok, 1999). Little research exists on book reading interaction in relation to the cognitive engagement of the participants. Cognitive engagement refers to the thinking skills that a participant activates in order to understand the text and successfully participate during a discussion. Yet children's ability in reading and listening comprehension at the end of first grade was predicted by their ability to define words, to classify familiar concepts, to form analogies, and to repeat written-language-like sentences at preschool age. Such measures are related to skillful use of decontextualized language (Mason, 1992).

This study's conceptual framework was based on the distancing model developed by Blank (1973) and Sigel and McGillicuddy-Delisi (1984). According to this model, verbal interaction that demands that children mentally represent a situation separately from the ongoing observable field assists the development and use of certain representational abilities. Representational abilities in this study were defined as the verbal strategies that both children and their teacher engage in when making predictions,

analyzing situations or events, and interpreting characters' emotions and actions. The use of the specific verbal strategies during interactive discussion stretches child and adult common understanding in ways that invoke the child's increasing understanding of such discussion. As the child becomes more involved, he or she participates more actively (Rogoff, 1990). Such participation prompts the development of thinking skills that help children engage successfully in abstract thinking (Blank, 1973) or what Donaldson (1978) calls disembedded thinking.

However, some children have not been socialized in this type of discussion. Their verbal experiences are confined to the process of doing things, and thus the nonverbal context helps them interpret a situation. In addition, young children's concentration spans are limited when they have to attend to language alone (Donaldson, 1978); therefore, some of the difficulties that children face during classroom reading depend on the book presentation and the kinds of experiences they bring from home. If children do not have access to the illustrations, the degree of difficulty of the task increases, because children have to concentrate on language alone for prolonged periods of time. Additionally, children might be unfamiliar with discussion that demands that they analyze, predict, and reason, and therefore they may misinterpret the questions teachers pose to them.

The objectives of this study were twofold. First, this study examined the existing relationships between teachers' and children's cognitive engagement during classroom book reading. Two strands of research on classroom reading exist. The first strand refers to descriptive studies of classroom interaction and teachers' book reading styles (Cochran-Smith, 1984; Roser & Martinez, 1985; Mason, Peterman, & Kerr, 1989; Teale, Martinez, & Glass, 1989; Martinez & Teale, 1993; Dickinson & Smith, 1994; Shine & Roser, 1999). Such research has described either the focus of children's and teachers' talk (story elements, episodes), the type of information the group discussed (text, picture, personal association, etc.), or the instructional strategies (elicits, invites, reviews) used by teachers.

The second strand refers to a number of intervention studies related to the quality of classroom book reading interaction with the purpose of improving young children's language development and text comprehension and developing their print awareness (McCormick & Mason, 1986, 1989; Karweit, 1994; Kertoy, 1994; Morrow, 1984, 1990; Valdez-Menchaca & Whitehurst, 1992; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994; Lonigan & Whitehurst, 1998; Reese & Cox, 1999; Hargrave & Sénéchal, 2000).

The majority of these studies have not examined the quality of discussion in terms of the thinking skills that young children use. Dickinson and Smith (1994) are among those who analyzed group discussions in such terms. Among their findings, talk between teachers and children before, after, and during reading was significantly correlated. In particular, they found that the more group talk took place, the more cognitively challenging were the discussion and talk related to task management. Danis, Bernard, and Leproux (2000) have also found a constant reciprocal adaptation between the level of abstraction that the parent expresses and the level of abstraction

the child adopts and vice versa during book reading. It was therefore expected in this study that teachers' and children's cognitive engagement would be interrelated. In addition, it was expected that a fine-grained analysis during book reading discussions would give the "flavor" of classroom interaction during such sessions.

Second, this study examined differences in young children's cognitive engagement across different types of books. Research on home book reading with preschool-age children has revealed more low cognitive demand discussion taking place with fiction books in contrast to information books, where interaction is accentuated with more high cognitive demand discussion (Pellegrini, Perlmutter, Galda, & Brody, 1990; Sulzby & Teale, 1987). In particular, Pellegrini et al. (1990) reported that mothers used more strategies to ensure their children's participation in expository texts (both books were collections of pictures and labels with a minimal text structure), and the discussion was of high cognitive demand. However, no differences were found related to the cognitive level of discussion between familiar texts (comics, toy advertisements) and traditional stories.

Bus and Van Ijzendoorn (1988) found more reading instruction focusing on letters and sounds with an ABC book, while picture books (*Where Is Spot?*) emphasized a question-answer pattern of interaction. Mason, Peterman, and Kerr (1989) have also reported differences in teachers' presentation style between fiction and information books; however, these differences were not examined in a systematic way. They mention that during the reading of fiction books teachers elaborated the story line and reading was usually followed by retelling of the story. With information books, the teachers focused on the development of vocabulary and concept building through discussion of children's personal experiences related to the topic. With picture books with limited text (three or four words on each page), the discussion focused on children's own bedtime events, giving more emphasis to print features than other features. Guided by the outcomes of the existing research, we hypothesized that differences would appear on the cognitive level of discussion between the information books and the fiction books between the narrative and the expository text but not between the familiar and the unfamiliar fiction book.

Methods

Participants

The data collection took place in Greek kindergarten schools. Twenty teachers participated from two Greek islands, and the children in all classes were of mixed ages from 3.5 to 5.5 years old. Teachers volunteered to participate, and the sample consisted mainly of experienced teachers (mean teaching experience = 12.6 years, range 3-20). Each class had from 10 to 20 children, all of whom attended the book session. Teachers usually read children's books three times a week.

Materials

Given that the choice of book has considerable impact on the presentation style and the discussion, it was important to give the same books to all teachers. Research on the books that Greek children of

preschool age have at home revealed that they mainly have cheap editions of traditional fairy tales (Kitsaras, 1993). The lack of children's access to other types of children's literature can be attributed to the fact that public libraries in Greece are rare, and there is no campaign publicizing the impact of book reading on young children's development.

All teachers read the same four books to the students, including a variety of book and text genres: *The Four Elements: Fire* by Rius and Parramon (1992), *Life under Earth* by Rius and Parramon (1994), *Winnie the Witch* by Paul and Thomas (1990), and *The Three Little Wolves* by Trivizas (1993).

The Four Elements: Fire is an information book with limited expository text. It describes features of fire, such as its color, and gives examples of when fire is good or bad, useful or dangerous. The pictures are rather static, showing the different uses of fire (e.g., a fireplace, a forest blaze, the candles of a birthday cake, Indians dancing around the fire) and complement the text. *Life under Earth* is an information book with a more extended narrative type of text. A little rabbit describes different events of its life, such as how its parents made their burrow, the kind of food it eats, and so forth. The illustrations present life under earth (roots, animals, bulbs) in great detail and either complement or follow the text at each page. *Winnie the Witch* is a contemporary fiction book that presents an eccentric witch who lives in a black house with a black cat. The good witch prefers to change her house to make her cat happy. The text has no dialogue. The illustrations are very impressive and complement the text. The house, the objects, and the heroes are presented with great detail and artistry. This particular book is considered to have an unfamiliar format because it does not follow the conventions of the fairy tales most children are used to. For example, there is no dialogue, there are no familiar expressions such as "once upon a time" or "they lived happily ever after," and a lot of information is implicit and is complemented by the book illustrations. *The Three Little Wolves* is a fiction book that follows the traditional style of "The Three Little Pigs," a popular fairy tale well known to children. All teachers had either read or told this traditional fairy tale in their class. The text in *The Three Little Wolves* has a lot of repetition, dialogue, and rhyming—all features of traditional fairy tales. The illustrations are also impressive and either follow or complement the text.

When teachers presented the books, they asked whether any child had the specific book at home or whether someone had read it to them. During the study, no child from all 20 classes knew the books, apart from one who owned a copy of *The Three Little Wolves*.

Procedures

Each session was tape recorded. Books were given to the teachers the day prior to the recording, and they were first read during our visit. Teachers were instructed not to read the text to the children in advance because research has shown that familiarity with the book changes the interaction patterns of book reading, with children participating more actively (Goodsitt, Raitan, & Perlmutter, 1988; Beals, DeTemple, & Dickinson,

1994). Additionally, we asked teachers to present the book in their usual way and try to ignore the presence of the researcher in the classroom.

Children sat on benches opposite the teacher. Most teachers adopted an interactive style in the presentation of information books (reading each page, showing the picture, discussing it); in presenting fiction books, they adopted a performance-oriented style (first read the whole story and then presented the pictures followed by discussion). The order of presentation of the four books was randomized to assure that there would be no differences between books due to children's increasing experience of being read to. From each class, we collected four different book readings; each session took place on a different day. In total, 80 sessions were collected. The mean durations of the session for the books follow: *The Four Elements*: Fire: $M = 22$, $SD = 6.22$; *Life under Earth*: $M = 22$, $SD = 7.7$; *Winnie the Witch*: $M = 22$, $SD = 7.1$; and *The Three Little Wolves*: $M = 33.5$, $SD = 12.8$.

Measures: Developing a Coding System

Unit of Analysis

The unit of analysis for the reading of the text by the teacher was the sentence; for the discussion for both teacher and children, the unit of analysis was the utterance. Utterances are defined as phrases that are distinctive in content and include intonation and turn taking between the teacher and the children (Wells, 1975).

During the coding of children's behavior, all their spontaneous comments were counted as separate utterances. More than one reply to a teacher's question counted if the teacher accepted the child's comment. If the teacher acknowledged more than one reply, then all replies counted as separate utterances.

Coding of the Participants' Behavior

To code the data, we adopted five different categories of features used by Wells (1975); Blank, Rose, and Berlin (1978); and Dickinson and Smith (1994) adapted for the needs of this study. The first category refers to the speaker (the teacher or child). The second is related to the context and includes book reading and talk before, during, and after book reading. The third codes opened or closed question or response or provision of information. The fourth category of feature specifies spontaneity or responsiveness. Spontaneous utterances included all questions and statements that initiated discussion. Responsive utterances included all responses to questions, statements that were prompted from another statement, and repetition of questions for a correct answer to be given.

The fifth category refers to the cognitive engagement of the participants. All utterances were recoded into three groups according to the degree of difficulty posed on the child during book discussion. The degree of difficulty varies according to the experiences each child brings from home. Because we were interested in an exhaustive description of the discussion, all comments related to the management of interaction were also included as a separate group of utterances.

High Cognitive Demand Discussion. This category includes all utterances that are more likely to engage the participants in sustained discussion during which they have to analyze, predict, and reason. The subcategories follow:

Predictions—of coming events, changes in structure (e.g., Child: If a baby fall in the fire, it will be burnt); formulating alternative solutions, hypotheses.

Analysis—demonstrating their knowledge of the world, explaining incidents not stated in the text, making comparisons without the assistance of pictures, assuming the role of another person (e.g., Teacher: "How did he feel?"), identifying the causes of an event (e.g., Teacher: "How can a fire be set?"), explaining an inference drawn from an observation (e.g., Teacher: "How did you understand that it is a carrot?").

Reasoning—interpreting characters' actions or feelings (e.g., Teacher: "Why is the pig bad?"), justifying personal preferences (e.g., Teacher: "Why do you like it?"), explaining the logic of compound words (e.g., Teacher: "Why is it called a mole?" in Greek, blind mouse).

Medium Cognitive Demand Discussion. The medium cognitive demand includes utterances that are not likely to engage the participants in sustained discussion, which requires from them to apply thinking skills of increased difficulty. The categories follow:

Clarification of Comments—making clearer what was stated, asking questions in order to clarify pictures.

Vocabulary Analysis—when the explanation of the word is extended and further information is being given, then it is coded as analysis.

Personal Experiences (e.g., Child: "My grandfather has onions and potatoes." Child: "In our village, we have a big well and it's full with water.")

Evaluating—personal preferences, simile (e.g., like jelly), making inferences from pictures, moralizing.

Low Cognitive Demand Discussion. The low cognitive demand category includes all utterances that focus on the book illustrations or the text being read by the teacher. The categories follow:

Book-Focused Comments—presenting a book; discussing writer, illustrator, front-back page, position of pictures, print.

Chiming—rhyming, singing, language play (e.g., Child: "She made him greenish").

Labeling—naming objects, describing pictures, identifying features, abstractions of physical properties such as color, size.

Recall—of story text, summarizing immediately after reading the text.

Personal Responses to the Text: (e.g., Child: "That is funny!").

Dramatization—utterances in which children are reenacting with sounds.

Management of Interaction

Utterances related to management of interaction during the reading session were categorized as follows:

Gives or Requests Attention.

Feedback Response.

Task Organization—turn taking, defining appropriate behavior, managing the task.

Repeat/Check—whether something was not heard well.

After the coding of the transcripts, all the measures of oral language were calculated in relation to the total number of utterances for each session. In order to achieve reliability in the coding of the data, two persons were employed. Eight transcribed stories were coded in order to calculate the interobserver's reliability. The Cohen Kappa for the participants and the context ranged from 0.99 to 1; for information, 0.97 to 0.99; for participation, 0.92 to 0.99; and for cognitive engagement, 0.90 to 0.97, reflecting "very substantial" agreement (Bakeman & Gottman, 1986).

Results

Cognitive Engagement during Book Reading Interaction

Table 1 presents the cognitive engagement of the total book session for both teachers and children. It appears that only 13% of the total utterances from all 80 sessions referred to the reading of the text, while most of the time was devoted to group discussion. Overall, the majority of utterances were related to low cognitive demand discussion (32.5%) and management of interaction (22.3%). In particular, the discussion was mostly concerned with text recall (14.1%), explication of the book illustrations (labeling: 13.9%), feedback response (11.2%), analysis of the text (10.2%), and evaluating comments (7.3%).

Table 1

Table 1
Cognitive Engagement during Total Book Reading Interaction for Both Teachers and Children

Cognitive Engagement	<i>n</i>	%
Book reading	4386	13
Low cognitive demand		
Book focus	238	0.8
Chiming	591	1.8
Labeling	4659	13.9
Recall	4710	14.1
Personal response	472	1.4
Dramatization	157	0.5
Total of low cognitive demand	10827	32.5
Medium cognitive demand		
Clarify	574	1.7
Vocabulary	294	0.9
Personal experiences	1421	4.2
Evaluate	2452	7.3
Total of medium cognitive demand	4741	14.1
High cognitive demand		
Analysis	3422	10.2
Reasoning	1721	5.1
Prediction	914	2.8
Total of high cognitive demand	6057	18.1
Management of interaction		
Task organization	2310	6.9
Feedback response	3764	11.2
Attention	816	2.4
Repeat / Check	405	1.2
Incomprehensible	127	0.4
Others	75	0.2
Total of management of interaction	7497	22.3
Overall total	33508	100

As expected, teachers participated more than children (teachers: 59%, children: 41%). Children's cognitive engagement depends on teachers' choice of cognitive strategies. In particular, teachers' high cognitive demand participation elicited children's high cognitive demand participation ($r_s = .41, p < .03$). The same pattern is repeated for the categories of low and medium cognitive demand participation ($r_s = .54, p < .007$; $r_s = .53, p <$

.008). Furthermore, a negative correlation appeared between teachers' participation of low cognitive demand and children's participation of medium and high cognitive demand ($r_s = -.58, p < .004$; $r_s = -.68, p < .000$) and between teachers' participation of medium and high cognitive demand and children's participation of low cognitive demand ($r_s = -.43, p < .02$; $r_s = -.57, p < .004$).

Additional correlations between teachers' and children's behavior point out:

The more teachers participate, the less children participate spontaneously ($r_s = -.52, p < .009$).

The more teachers participate, the less children's participation is of medium and high cognitive demand ($r_s = -.40, p < .03$; $r_s = -.49, p < .01$). However, such a correlation was not found for children's low cognitive demand participation ($r_s = -.10, p < .33$).

We were also interested to examine whether a relationship exists between the cognitive demand of discussion during book reading and that after the reading of the text. A significant relationship appeared only between medium cognitive demand discussion during book reading and children's spontaneous medium cognitive demand comments in post-reading sessions ($r_s = .49, p < .01$).

Differences in Cognitive Demand of Discussion among the Four Books

Figure 1 illustrates the differences in the cognitive demand of discussion among the four books. We found significant differences for both low and high cognitive demand of discussion between information and fiction books ($z = -3.58$, two-tailed $p < .0003$, and $z = -3.77$, two-tailed $p < .0002$). Nineteen groups engaged more in low cognitive demand discussion with fiction books, while with information books, 18 groups focused more on discussion of high cognitive demand. Thirteen groups had more medium cognitive demand discussion with information books, which almost reached the level of significance ($z = -1.92$, two-tailed $p < .054$). For the category of management of interaction, no significant differences were found ($z = -1.17$, two-tailed $p < .23$).

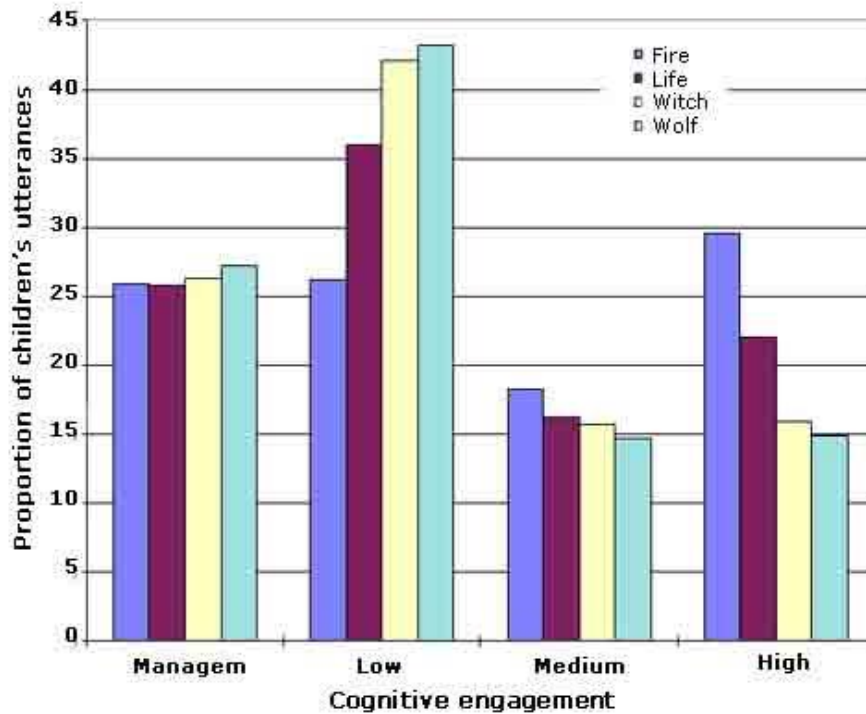


Figure 1. Differences in cognitive demand of discussion among the four books.

When the narrative (*Life under Earth*) and the expository text (*The Four Elements: Fire*) were compared, significant differences were found only for the categories of low and high cognitive demand (low: $z = -2.76$, two-tailed $p < .005$; high: $z = -2.89$, two-tailed $p < .003$; medium: $z = -.07$, two-tailed $p < .94$; management $z = -.80$, two-tailed $p < .42$). In 16 out of 20 groups, *The Four Elements: Fire* elicited more discussion of high cognitive demand, whereas *Life under Earth* prompted more low cognitive demand talk.

Finally, no differences were found between the unfamiliar story format (*Winnie the Witch*) and the familiar one (*The Three Little Wolves*) (management: $z = -.61$, two-tailed $p < .53$; low: $z = -.31$, two-tailed $p < .75$; medium: $z = -.37$, two-tailed $p < .70$; high: $z = -.44$, two-tailed $p < .65$).

Discussion

The first objective of this study concerned teachers' and children's cognitive engagement during classroom book reading. Overall, we found that most group discussion focuses on text recall and labeling and is of low cognitive demand. Retelling is one of the most frequent activities taking place, accompanied by the description of the book illustrations particularly useful for text comprehension. It is interesting to note that only 0.8% of utterances refer to book-focused comments (e.g., "The title of the book is fire. Look here. It says fire."). Such comments are related to print awareness and concepts about books. There is usually a distance between the teacher and the children sitting around her, making it difficult for children to pay attention to print features. Thus, it is unrealistic to expect that group book reading alone can contribute to children's development of concepts about print.

A significant part of the discussion is related to management of interaction (22.3%), most of which concerns feedback response (11.2%). Considering the children's ages and the fact that the activity is a group one, such a finding is not surprising. A considerable proportion of high cognitive demand discussion (18.1%), mostly related to analysis (10.2%), also takes place. This type of discussion assists children's development of representational abilities, which are especially beneficial for children's later school success. Finally, only 14.1% of the discussion is of medium cognitive demand. The majority of such utterances refer to evaluations (7.3%) and personal experiences (4.2%). Among others, evaluation codes talk related to what children liked most about the story, moralizing, and making judgments about characters' behavior and particular events.

As expected, children's participation is highly correlated to teacher's participation at the level of cognition, which complies with findings from other studies (Dickinson & Smith, 1994; Danis, Bernard, & Leproux, 2000). Furthermore, we found a negative correlation between teachers' participation and children's medium and high cognitive demand participation. Such relationships illustrate that children need space if they are to elaborate, evaluate, and analyze during group discussion. A positive correlation also appeared between group discussion of medium cognitive demand and children's spontaneous comments of medium demand in post book session. The majority of spontaneous utterances in this category refer to children's personal experiences (Moschovaki & Meadows, 2005). It seems that initiating discussion about such experiences is a strong motivating factor for children's participation. Thus, children's urge to share personal experiences within the group is strong enough to last even after text reading.

We observed that discussion about personal experiences creates great excitement in the group, and the teacher usually plays a decisive role in managing the interaction. All children want to share their personal experiences related to the topic of the book. Linking new information with what they already know, usually their firsthand experiences, is a spontaneous meaning-making activity. However, sharing personal experiences within a group situation is also something more than a cognitive strategy. Speaking inside the group, children acknowledge themselves;

sharing part of their personal world is one way of doing it, as the following example points out. The teacher here points at the picture that illustrates a mole inside a tunnel.

Teacher: These are big mice, rats that live under the earth.

Child: Mrs.?

Teacher: Yes?

Child: My father, we went to feed our dog, and a mouse was in the sack, and my father took him out and killed him.

Teacher: Oh, do you see what they (mice) do! (Children raise hands to speak.) Yes, Ageliki.

Child: Mrs., one day we put our car in our garage and then went in the house, and we saw a mouse.

Child: Mrs.... Mrs.?

Teacher: Yes?

Child: I, one day with my grandfather, we went to the mountain, and we saw a dead mouse, and then my grandfather picked it up with a piece of paper and threw it in the river.

Teacher: Was he dead? Yes, Lambro.

Child: My grandmother killed a mouse, and it was that big!

Teacher: Oh, it must have been in the garden.

Child: Miss, me and my father have a big mouse, and he stole and took my food.

Teacher: He took your food? Well OK, lets see what the mouse in our story did.

The second objective examines differences in cognitive engagement among different types of books. Information books and expository texts prompted more high cognitive demand discussion, while fiction books and narrative texts of information books more low cognitive demand discussion. The expository text *The Four Elements: Fire* elicited the highest proportion of high cognitive demand discussion. The text of the particular book was limited and did not provide enough information. Pictures gave clues, and teachers exploited them. They tried to elicit a lot of personal experiences from children, involving them in reasoning, analysis, and prediction in order to complement the lack of information in the text. On the other hand, familiarity with the story format had no effect on the cognitive level of discussion. Such outcomes comply with previous research findings (Sulzby & Teale, 1987; Mason, Peterman, & Kerr, 1989; Pellegrini, Perlmutter, Galda, & Brody, 1990). This finding suggests that parents and teachers who read a lot of information books and expository texts to children are more likely to engage their children in high cognitive demand discussion with an impact on both language development and the development of their representational abilities.

The outcomes strongly suggest that there is a book effect on the quality of discussion and on children's cognitive engagement. Teachers adopt different stances with information and fiction books. In fiction books, they are more concerned with the understanding of the story line, while in information books, they want children to learn information about the topic (e.g., fire, life under earth). Therefore, the discussion of fiction books is

more book focused (low cognitive demand) in contrast to a more book-extending discussion (high cognitive demand) taking place with information books. Contrary to story format (familiar/unfamiliar), text genre (expository/narrative) also seems to have an impact on the quality of discussion. However, given that the expository texts were minimal in both this study and in the study by Pellegrini et al. (1990), it is possible that the outcome is due to its length rather than text genre. Thus, future research should control other parameters such as text length and quality of illustrations if we are to find conclusive evidence.

Implications for Future Research and Practice

The outcomes of this study have considerable implications for future research projects, especially for longitudinal studies. So far, the majority of longitudinal studies have focused on the frequency of book reading in relation to children's developmental outcomes (Scarborough & Dorbich, 1994; Bus, Van Ijzendoorn, & Pellegrini, 1995; Blok, 1999). However, other dimensions of book reading should be taken into consideration to develop a clear picture of the long- and short-term effects of book reading on young children's development. In particular, the outcomes of this study seem to indicate that information books elicit more high cognitive demand discussion, which is more likely to develop young children's representational abilities. Fiction books are more likely to develop children's ability to comprehend stories and develop story schema knowledge. In addition, other studies have shown that small texts with large letters seem to be responsible for the development of early reading skills if used appropriately by the teachers (Bus & Van Ijzendoorn, 1988; McCormick & Mason, 1986, 1989). An account of what sorts of books adults read and their presentation style can predict more accurately how children are likely to benefit.

The study also has implications for practitioners. Research has indicated that book reading has considerable impact on children's development of early literacy skills, their receptive and expressive language, and their thinking skills, which assist the development of disembedded thinking (see reviews in Scarborough & Dorbich, 1994; Bus, Van Ijzendoorn, & Pellegrini, 1995; Blok, 1999). Teachers should become aware of the various benefits of book reading and structure such sessions to optimize the benefits children can gain from them. For example, the presentation of books can have a significant impact on children's development of representational abilities. Children's lack of ability to sustain their attention on language alone should be taken seriously into account by teachers. Some teachers prefer to always show the book illustrations while reading the text, which means that children do not have the opportunity to concentrate for prolonged periods of times on language alone. Yet this concentration is important if children are to be able later on to attend to the language the teacher uses within the classroom (Donaldson, 1978).

Furthermore, teachers should pay attention to the quality of book discussion. Discussion that revolves around predictions of coming events, reporting of world knowledge, identifying causes of an event, interpreting characters' actions and feeling, explaining inferences, and so forth, is

particularly useful for the development of children's representational abilities. Teachers could be trained to use such strategies during group discussion. However, children's developmental levels should also be taken into account. For example, research has found that the describer style of reading (low demand) is beneficial for the development of children's vocabulary and print skills, while the performance-oriented style (high demand discussion taking place after text reading) is more beneficial for the proficient children (Reese & Cox, 1999). Therefore, teachers need to become aware of the need to select a wide range of books and prompt the discussion according to their expected goals and children's developmental level if book reading is to offer the utmost for young children's cognitive development.

Note

1. In Greek, the mole is called "tyflopodikas." It is a compound word where "tyflos" means blind and "podiki" means mouse. Teachers explained that moles are almost blind because they live under the earth where there is no light. Based on such information, they justified the name of the particular animal.

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Mapping Knowledge: Concept Maps in Early Childhood Education

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Abstract

Graphic organizers such as webs, time lines, Venn diagrams, flowcharts, and concept maps are well known and widely used instructional and learning tools. They help teachers and students not only to identify and visually represent their views and knowledge but also to recognize and depict relationships among concepts. This article discusses the use of concept maps in early childhood education. In light of a theory that suggests that information is processed and stored in memory in both linguistic and visual forms, it is argued that concept maps can be used in early childhood classrooms to help children organize and spatially represent both what they know and what they are thinking. Once children learn how to “read” and make concept maps, teachers can also use them to identify children’s preexisting knowledge or misconceptions as well as use them as an evaluation tool. The article also considers the role of concept maps in teacher planning. Concept maps can help teachers to plan, structure, and sequence the content of their teaching. Finally, the article illustrates some of the issues involved in using concept maps with preschool children and suggests ways of introducing children to the process of constructing their own concept maps.

Introduction

According to the “dual-coding” theory of information storage (Paivio, 1991), information is processed and stored in memory in two forms: a linguistic form (words or statements) and a nonlinguistic, visual form (mental pictures or physical sensations). The way knowledge is coded in the brain has significant implications for teaching and particularly for the way we help students acquire and retain knowledge. As Marzano, Pickering, and Pollock (2001) point out, “the primary way we present new knowledge to students is linguistic. We either talk to them about the new content or have them read about it” (p. 73). The fact that education gives weight to the verbal processing of knowledge means that students are left to generate their own visual representations. Yet, it is well established that showing children how to represent information using the imagery form not only stimulates but also increases activity in the brain (Marzano, 1998). As students try to convey what they know and understand in nonlinear, visual ways, they are forced to draw together what they have learned; see how ideas, information, and concepts are connected; develop higher-order thinking skills (e.g., analytical thinking); and organize their knowledge in a way that makes

sense to others. Visual representations also help students remember and recall information more easily.

Visual representations can be created and supported by tools such as graphic organizers, physical models, pictographs (i.e., symbolic pictures), and engaging students in kinesthetic activities, that is, activities that involve physical movement (Marzano, Pickering, & Pollock, 2001). From those, perhaps the most commonly used visual learning tool is graphic organizers, which include diagrams depicting hierarchical information (e.g., concept maps), time-sequence patterns (e.g., chain of events, time lines), cause-effect relationships (e.g., fishbone diagrams), comparisons (e.g., Venn diagrams), free associations and links among ideas (e.g., webs or mind maps), and how a series of events or stages are related to one another in a repeating process (e.g., life cycle diagrams). Graphic organizers help students not only to “read” and comprehend more easily complex information and relationships but also to generate ideas, structure their thoughts, and learn how to make visible, in an easy-to-read way, what they know. The latter requires that students understand the topic under study, be able to discern relationships between concepts, and prioritize information.

Most visual teaching methods are well suited to the learning needs of preschool children. Venn diagrams, event chains, time lines, and cycle diagrams can be used to illustrate differences and similarities (e.g., between animals or people), show the sequence of events in a story, describe the steps to be taken in a process (e.g., in order to create something), or show how events interact and repeat themselves (e.g., the water cycle). The most widely used method in early childhood education is webbing. An important element of the Project Approach, webs are graphic maps that are used by teachers to generate and sort what children know or would like to learn about a topic, concept, or theme and to stimulate questions and ideas for activities (Chard, 1998; Katz & Chard, 2000). Webs are also very useful project-planning devices that can help early childhood teachers to reflect on their own knowledge, experience, and resources as a basis for guiding the project; identify the key ideas and concepts that a topic comprises; see how different subject areas link to each other; and ponder possible actions (Katz & Chard, 2000; Workman & Anziano, 1993; Wray, 1999).

Another effective way to help children represent what they know and understand in visual forms, which is however less used in early childhood classrooms, is concept maps. With the current emphasis on teaching for understanding and the importance of conceptual knowledge, teachers need techniques that help children see patterns and connections (rather than memorize facts) and form mental structures that would help them handle new knowledge and relate it to past knowledge (Erickson, 2002). While webs are mainly a graphic representation of the ideas associated with a topic, concept maps generally illustrate the kind of relationships that exists between information. That is why concept maps, as explained in more detail later, are often organized in a hierarchical way. In webs, the topic or the concept under study is usually found in a circle in the middle of a piece of paper, surrounded by ideas, questions, or words, often loosely connected to each other.

Concept Maps

Concept maps were developed in the early 1970s at Cornell University by Novak and his research group (Novak, 1998). They are constructed to represent visually “meaningful relationships among concepts in the form of propositions” (Novak & Gowin, 1984, p. 15). As Novak and Cañas (2006) explain, “propositions are statements about some object or event in the universe, either naturally occurring or constructed. Propositions contain two or more concepts connected using linking words or phrases to form a meaningful statement” (p. 1). The propositions are the element that makes concept maps different from other similar graphic organizers (e.g., mind maps).

In other words, concept maps are “the spatial representations of concepts and their interrelationships that are intended to represent the knowledge structures that humans store in their minds” (Jonassen, Reeves, Hong, Harvey, & Peters, 1997, as cited in McAleese, 1998, p. 258). In its simplest form, a concept map would be just two concepts connected by a linking word to form a proposition (Novak & Gowin, 1984, p. 15)—for example, “seeds grow into plants.” Another example of a simple concept map is shown in Figure 1. However, Novak and Gowin (1984, pp. 15-16) argue that “because meaningful learning proceeds most easily when new concepts or concept meanings are subsumed under broader, more inclusive concepts, concept maps should be organized in a hierarchical way; that is, the more general, more inclusive concepts should be at the top of the map, with progressively more specific, less inclusive concepts arranged below them” (Figure 2).

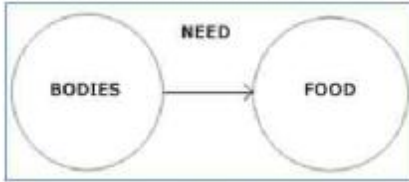


Figure 1. An example of a simple concept map.

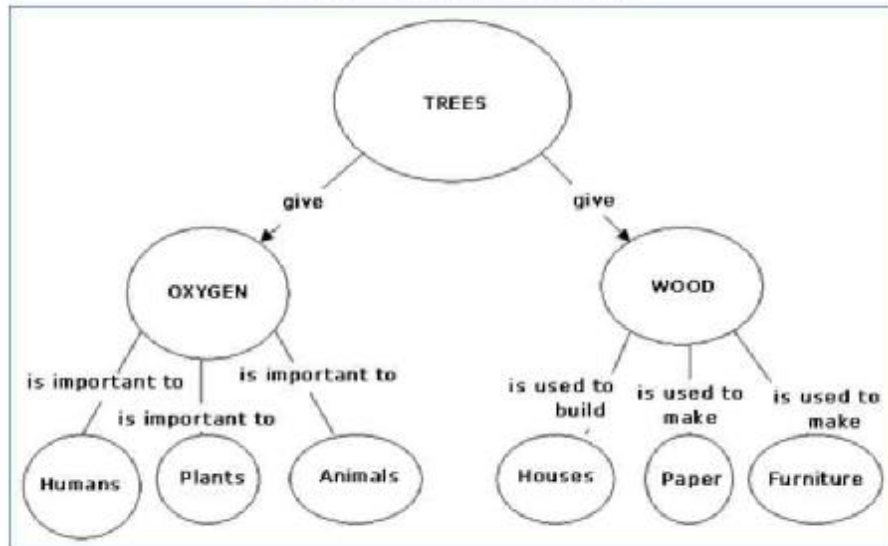


Figure 2. A concept map organized hierarchically.

Both simple and more complex concept maps consist of two things: concepts and the relationships among them. Concepts are usually represented as labeled circles or boxes, which are called “nodes.” Relationships, on the other hand, are represented as lines (or else arcs) or arrows connecting the concepts. Lines are usually labeled with verbs in order to specify the relationships between concepts, while arrows are used to show the direction of the relationship (e.g., one-way or two-way). As concepts are connected through links, they form the statements that Novak and Gowin refer to as propositions.

Concept maps can facilitate teaching and learning in several ways. First, as their inspirers note, they can help both teachers and students to identify the key concepts and principles that they must focus on for any specific learning task (Novak & Gowin, 1984, p. 15). Second, a concept map can provide “a kind of visual road map” indicating some of the pathways that teachers may take “to connect meanings of concepts in propositions” (Novak & Gowin, 1984, p. 15). Third, concept maps can provide a graphical summary of what students have learned, which in turn can help teachers

detect and eventually break down students' misconceptions and misunderstandings.

Concept maps are also effective in helping teachers identify students' prior knowledge and understandings and organize teaching and learning in a way that is meaningful to them. In fact, identifying students' preexisting knowledge was the aim that led Novak and his team to the construction of the first concept map (Novak, 1998). Last, but not least, once students learn how to externalize their understanding and create concept maps, their maps can be used as a way to monitor their conceptual development and assess their understanding and knowledge.

Summing up the purposes for using concept maps, as presented above, one could reasonably argue that they are mainly a representation of what people know and understand. Although concepts maps can indeed help structure and display people's knowledge, for some researchers, they are more than a tool for the "representation of cognitive structures." More specifically, according to McAleese (1998), another important function of concept maps is that they "allow off-loading of thinking and show the result of engaging in knowledge construction" (p. 258). Within this framework, as he goes on to say, concepts maps are seen as "an opportunity to engage learners in the process of their learning" (p. 258). In the same vein, Maxwell (1996, citing Howard & Barton, 1986) argues that concept maps can be seen as a "way of thinking on paper," a process that can show students "unexpected connections or identify holes or contradictions in their 'theory' and help them to figure out ways to resolve them" (p. 37). If thinking is done in collaboration with others, then concept maps facilitate not only social interaction and communication but also the development of shared understanding.

Concept maps can be constructed either by hand or using specific software programs. The main benefit of using a computer is that concepts and links can be easily manipulated and updated while the format can be modified or enhanced visually by inserting colorful symbols, pictures, connectors, or clip art (Dormer, n.d.). Another advantage of concept-mapping software is that it offers ready-made templates of different types of concept maps (e.g., of different hierarchical structures) to be used in various curriculum areas. Because of those characteristics, computer-based concept mapping is gaining ground as a popular alternative to the traditional paper-and-pencil concept-mapping method.

Concept Maps in Early Childhood Education

Although there is a large developing body of literature on concept mapping as an instructional and learning tool in elementary, secondary, and higher education, little has yet been written about the use of concept maps (or graphic organizers in general) in early childhood education (McAleese, 1998, 1999; Novak, 1998; Santhanam, Leach, & Dawson, 1998; Zanting, Verloop, & Vermunt, 2003). Perhaps the assumption is that preschool children do not yet have the ability to use various types of representations (e.g., networks of propositions or words, sequence of events in time and space). However, current knowledge about early learning emphasizes children's capacity to represent knowledge that is presented in ways that are

developmentally appropriate (Smith, Cowie, & Blades, 2001). The few studies that have investigated the use of concept maps in preschool education seem to suggest the same thing: if introduced and used in developmentally appropriate ways, concept mapping is particularly effective in helping children see and externalize the relationships among concepts (Alí Arroyo, 2004; Badilla, 2004; Figueiredo, Lopes, Firmino, & de Sousa, 2004; Mancinelli, Gentili, Priori, & Valitutti, 2004). For example, Mancinelli et al. (2004) used object manipulation, clinical interviews, conversation, and drawings to help 4- to 5-year-old children to build their own concept map about the process of making papier-mâché. Figueiredo et al. (2004) helped children from 3 to 5 years old to represent the “things we know about the cow” using discussion and real objects (which they gradually replaced with pictures) and providing them with map templates in order to help them put concepts in a hierarchical structure (e.g., the cow gives us milk from which we make yogurt, cheese, butter, etc.). Two more examples of using concept maps with young children come from Nancy Gallenstein (2005, p. 46), who helped kindergarten children “share their knowledge about good nutrition” using both objects and pictures; and Badilla (2004), who used pictures to help 5- to 6-year-old children generate a concept map about “the house” and understand certain characteristics of concept maps such as their hierarchical structure and the possibility of linking different concepts in different ways.

Concept maps in early childhood education can be used by teachers and children alike. As a teaching tool, concept maps can be used to help children clarify, organize, relate, and group ideas and information about a topic. In doing so, children learn another way of representing and communicating what they know. In addition, concept maps help children to literally see relationships among concepts and remember information more easily. Moreover, concept maps, like webs, allow children to revisit them and expand them. As children go back again and again, the teacher can see how new knowledge is integrated with old knowledge and diagnose misunderstandings. The latter is very important since, as Ausubel, Novak, and Hanesian (1978) argue, preconceptions (and misconceptions) are crucial for the quality of subsequent learning. Missed relationships and concepts, in particular, as well as wrong connections, can tell teachers a lot about children’s conceptions and comprehension of the topic under discussion. To rectify misconceptions, the teacher can provide children with opportunities to apply the concepts under study in different contexts or ask questions that force children to review their conceptions critically.

Concept maps can also be used to organize teaching or the entire curriculum. As a planning tool, they can help teachers plan, structure, and sequence the content of their teaching. As they create a map of what they want to teach, teachers can see how different themes and topics are linked, so continuity of experience is ensured, and develop units and activities that integrate different subjects.

Clearly, if concept maps are to fulfill their potential as a teaching tool, preschool children’s needs and cognitive abilities need to be taken into

consideration. More specifically, early childhood educators interested in using concept maps should keep in mind the following:

Obviously, young children are not going to be in a position immediately to construct a concept map on their own. In fact, as Sparks Linfield and Warwick (2003) point out, young children need to be taught the technique of concept mapping, and therefore a period of direct instruction is necessary before children can successfully construct their own concept maps (Ferry, 1997). This process should start by having children observe their teacher creating concept maps.

When modeling the process of concept map creation, teachers should give particular emphasis to the linking or “joining” words and help children understand that “they are what makes the whole thing have meaning” (Sparks Linfield & Warwick, 2003, p. 126). Those words help create the propositions, the main characteristic of concept maps.

Concept maps should be introduced after children have had many opportunities to manipulate real objects, observe what is going on around them, record their observations, and communicate their findings and impressions in different ways. Having those experiences is important because it is through these experiences that concepts and generalizations are formed (Mancinelli, Gentili, Priori, & Valitutti, 2004). Concrete experiences are also crucial for the development of representational thinking. For example, children must have observed plants needing to be watered and seen for themselves what happens to be able to represent graphically the relationship “plants need water.” It is also better to introduce concept maps after children have had some experience with simple, less-structured graphic organizers such as webs as a way of summarizing and presenting information.

Children’s first attempt to create a concept map should be done within the context of a simple, familiar topic (e.g., animals or plants) and using a small number of concepts (e.g., 2 to 4). In addition, as Sparks Linfield and Warwick (2003) suggest, with young children it “would be more sensible to simplify concept mapping, making it a method of showing links between concepts but ignoring the hierarchical structure of those concepts” (p. 125). Figures 3 and 4 show two examples of the kind of concept map that Sparks Linfield and Warwick are referring to. Their argument is supported by the findings of a study conducted by Figueiredo et al. (2004), which suggests that kindergarten children find it difficult to depict even simple hierarchical relationships without a visual aid, namely a map template (with boxes and lines).

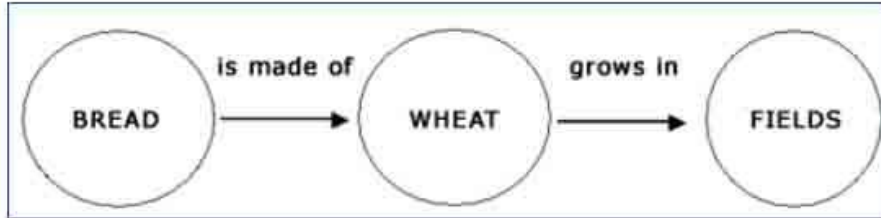


Figure 3. An example of a concept map using a simple, familiar topic.

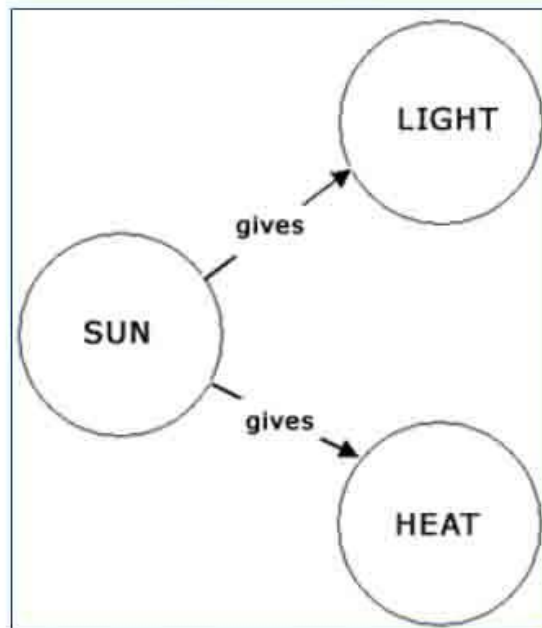


Figure 4. Another example of a simple concept map.

To better familiarize children with concept maps, pictures (or photos or drawing images) can replace text labels (words) because children of this age communicate their ideas better through symbols (Pearson & Somekh, 2003). Drawings or pictures can also be used by and for children who speak a different language or have reading or writing problems (Pearson & Somekh, 2003). One difficulty with using children’s drawings is that if they are not clear (because of children’s limited drawing skills), it will be difficult for children to remember their representations if they need to revisit their maps (Gomez, 2005). Teachers who work with 4- and 5-year-olds should also consider that, as research on children’s graphic development suggests, at this stage the objects depicted in children’s drawing “typically

appear to ‘float’ on the page” and are “seldom drawn in relationship to another in position or size” (“Young in Art,” n.d.). To differentiate the hierarchical levels or to show the reading order of the map, teachers can help children assign numbers to their symbols (Mancinelli, Gentili, Priori, & Valitutti, 2004). Concept maps based on children’s drawings look more like “real” concept maps around the age of 5 or 6, when most children have acquired not only a larger “repertoire” of graphic equivalents for the things that they see around them but also a better sense of how things can be organized in space (“Young in Art,” n.d.). Depending on children’s ages and previous experience with concept maps, teachers can also use real objects to represent concepts and relationships. As children become better readers and writers, simple words can replace objects, drawings, or pictures. In any case, the important thing is to help children see and understand that concepts (objects or pictures) are linked to form meaningful statements and that relationships between concepts can be represented graphically.

Figure 5 summarizes the steps that teachers can take to model the creation of a concept map (adapted from Novak & Gowin, 1984; White & Gunstone, 1992).

Select the key concepts of the topic under study (e.g., sun and earth, sun and heat) after discussing with children “what we have seen or learned.”

On a large piece of paper or the board, write or draw (or use pictures or photos) the key concepts (leave enough space between them so that the connecting lines are long enough to be seen and can have words written on them). Next, put words or pictures in large circles or boxes (concepts could also be written on 3-x-5 cards).

Connect the concepts (circles) with a line (or an arrow depending on the relationship you want to represent). As you link the two concepts, state in a simple and short sentence the relationship between them (e.g., “So, we’ve learned that the sun warms the earth” or “The sun gives heat”). This allows children to “see” and “follow” your thinking. Label the line using simple action words (e.g., warms, gives, needs, becomes) that specify the relationship between the concepts. Write the connecting word (e.g., warms) on the line. Use different colors for circles and links to help children see these as different types of information.

Encourage children to “read” the map on their own (or else recite the sentence).

Have children copy the map from the board.

Figure 5. Steps in modeling the creation of a concept map.

After modeling the process of creating concept maps several times and before teachers move into encouraging children to construct their own concept maps “from scratch,” there could be another stage where children practice interacting with (rather than constructing) different types of “incomplete” maps (Noyd, 1998). Those include “concept-only” maps, where key concept words are identified and pre-structured on the map and children are asked to fill in the missing propositions and direction arrows in the spaces provided; and “link-only” maps, where key relationships/propositions are already pre-structured and labeled on maps

and children are asked to fill in the missing concept words in the spaces provided (Yung, 1997).

When children are ready to build their first concept map, it is perhaps better if this happens in the context of a project rather than during a “one-off” teacher-structured activity. This strategy would help children to see concept maps as a way of organizing information received from different sources and summarizing what they are learning (Novak & Gowin, 1984). It is also advisable to start with a linear rather than a hierarchical concept map. The following steps outline the procedure when teaching children how to construct a concept map:

During group discussion, the teacher asks children to talk about the things they have learned through the exploration of the topic under study (e.g., “through our field trip, we learned that bread is made of wheat” or “we show that all families have rules”). As children talk, the teacher writes down in ready-made paper circles the key concepts arising from children’s observations and ideas (e.g., “bread” and “wheat,” “families” and “rules”). Circles should be large enough for children to draw on the side of each word a picture that symbolizes the specific concept. In this way, concepts can be “read” by everybody no matter their communicative and linguistic capacities.

Next, circles are put on the floor, and children are asked to arrange them in a simple sentence that expresses the relationship between them. Once children have identified the relationship between the concepts and created their sentences, circles can be glued on a large piece of paper so links can be drawn.

Finally, children are prompted to show the relationship between the concepts by connecting them with lines (or arrows if needed). Then, the teacher (or children themselves) can write the action word (verb) that completes the proposition.

As children engage in the process of creating a concept map, early childhood teachers should keep in mind that concept mapping is a creative activity in which “the learner must exert effort to clarify meanings by identifying important concepts, relationships, and structure within a specified domain of knowledge” (Cañas, 2003, citing Novak & Gowin, 1984, p. 22). Within this framework, teachers should enhance and support children’s thinking through questions that prompt for justification, request clarification, encourage connections among concepts and ideas, and provoke more questions on the part of the children (Cañas, 2003).

Finally, it is also important for children to see that concept maps are not “an end in themselves.” Rather, they are a tool for developing relationships and making them more explicit. To show them that concept maps are not static statements or just pictures, teachers should encourage children to go back and rework them (add or change concepts or links) as their understanding of the concepts they are working on develops or as they gain new knowledge or insights (Maxwell, 1996; Novak, 1998). As children do so, teachers can check their conceptual understanding. In practice, this means that concept maps should stay in view, and within easy reach of the

children, from the day they are constructed until the day the teacher judges that they are not needed any more.

Summary

In sum, concept maps are a useful instructional tool even in preschool education. Concept maps can be used to help children see concepts and the relationships between them and externalize their ideas. They also help teachers to assess children's conceptual development and understanding, identify misconceptions, and facilitate learning by building new knowledge on old knowledge. In preschool education, direct instruction and modeling of concept map creation are needed in order for children to see their purpose and eventually create their own concept maps. Once familiar with the idea and the process, children can construct their own maps either individually or collaboratively.

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Primary Literacy Achievement: A Collaborative Urban Partnership

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Abstract

This study examined the effects of a collaborative urban partnership on student literacy achievement. The participants were approximately 220 students in kindergarten through third grade and 10 teachers. Participants were from an urban, low-income southeastern elementary school serving culturally diverse students. The school had been in its fourth year of Title I Program Improvement due to failure to achieve adequate gains on standardized test scores. The school leaders resolved to develop and implement an effective, research-based literacy program to ensure that all students would be able to read fluently and independently at grade level by the completion of third grade. The school leaders also realized the need to address the urban challenges of low teacher expectations for student achievement and lack of parental involvement. The collective efficacy, or shared belief system, of teachers and the resultant morale of teachers were also considered by school leaders. A collaborative urban partnership was created to furnish school and community supports to families while it provided inservice, preservice, and resource support for teachers to implement research-based instruction. Results of formal assessments from required state testing and from individual case studies indicated an increase in student literacy achievement. Informal data analysis also suggested an increase in student literacy achievement. Since it is possible that the gains in student achievement were due to other components of the collaborative partnership or even to other unspecified factors, further research is necessary.

Introduction

Urban schools with students from culturally diverse backgrounds present unique challenges to educators as well as opportunities for teaching and learning. Many urban areas are overwhelmed by social and community

problems that result in inadequate funding for schools and in teacher apathy (Beachum & McCray, 2004). Diverse urban families of low-socioeconomic status, frequently the families most affected by a multitude of economic and social constraints, often provide little support for learning in the home environment. Research indicates that factors in the home environment and community have a direct impact on student achievement. Research also suggests that there is a significant gap between poor, culturally diverse students and white students in vocabulary development, even as students enter school (Hart & Risley, 2003; Resnick, 2004). Furthermore, instruction in low-income urban schools is often based on cognitively low-level, unchallenging rote material that fails to teach for understanding (Darling-Hammond, 1997). Research suggests that many teachers in low-income urban schools have limited expectations for student achievement and are inadequately trained to teach reading (Carter, 2001; McNeil, 2000).

There is also evidence that some programs and schools have been successful in raising low-income student achievement in urban areas. The Calvert program, Knowledge Is Power program, and the U.S. Department of Defense schools have proven to be successful in reducing the achievement gap between culturally diverse students and white students. All of these programs and schools encourage high-quality teaching, emphasize high expectations for student achievement along with rigorous curricula, and promote strong community environments that support and value academic achievement (Carter, 2001; Resnick, 2004).

Background of the Study

During academic year 2000-2001, an urban southeastern elementary school with low-income, diverse students struggled into its fourth year of a Title I Program Improvement due to failure to achieve adequate gains on standardized test scores. Realizing that changes were needed to better serve the students, the school leaders resolved to develop and implement an effective, research-based literacy program to ensure that all students would be able to read fluently and independently at grade level by the completion of third grade. The school leaders also realized the need to address the urban challenges of low teacher expectations for student achievement and lack of parental involvement. To promote the successful implementation of the program, the potential barriers of teachers' negative perceptions of change and resultant low morale were addressed by the school leaders.

Attendance by a core team of teachers and administrators at the 2001 Reading Excellence Act (REA) Best Practices Institute in Atlanta served as an impetus for change. The Reading Excellence Act had as its purposes the providing of early intervention to children at risk of inappropriate identification for special education, the furnishing of support for preschool children to enhance learning to read once in school, and the teaching of children to read by the end of third grade. REA instruction was to be grounded in scientifically based reading research (Reading Programs, 1997-2005). Thus, a collaborative urban partnership for primary literacy education was created (see Figure 1). The collaborative partnership was comprised of support to teachers by inservice and preservice professional development and by a Reading Resource Center. Support was provided for

children and their families through school and community inputs. Thus, a proposal was submitted to the REA organization that resulted in funding for a two-year grant to develop and implement the collaborative urban partnership in the primary grades.



Figure 1. Collaborative Urban Partnership.

Support from Research

To design the new literacy program for kindergarten through grade 3 in accordance with the requirements of REA instruction, the scientifically based reading research was reviewed. This research uses scientific procedures to obtain information about how young children develop reading skills, how children can be taught to read, and how children can overcome reading difficulties (Armbruster, Lehr, & Osborn, 2003). Predictors of success in reading for all students include cognitive abilities, positive expectations and experiences with early literacy in the home, and much support for positive literacy attitudes and activities from an early age. It was found that failure in learning to read adequately is often characteristic of poor and nonwhite children (Snow, Burns, & Griffin, 1998). The literacy environment in a home was found to be one of the most powerful predictors of reading and vocabulary knowledge. For low-income children, vocabulary was identified as a major problem for reading; and vocabulary difficulties tended to worsen as low-income children aged (Chall, Jacobs, & Baldwin,

1990). Therefore, a literacy program combining the elements of scientifically based reading research with school, home, and community support was envisioned.

To propose an effective program for primary-grade students from kindergarten through grade 3, the core team of teachers and administrators sought to create a literacy program that integrated word study, fluency, vocabulary, and comprehension as set forth in the report of the National Reading Panel (2000) included in the federal No Child Left Behind Act (2002). Word study would incorporate the teaching of phonemic awareness, phonics, spelling, high-frequency word recognition, and vocabulary (Stewart, 2004; Vogt & Nagano, 2003). Word study also would include rhyming games, singing, and reading books by authors such as Dr. Seuss (Neuman, Copple, & Bredekamp, 2002). Students' invented spellings in journal writings would be utilized for explicit instruction in alphabet, phonics, word recognition, and spelling (Invernizzi, Juel, & Rosemary, 1996/97). The use of word boxes (Clay, 1993) to scaffold children's phonemic awareness, phonics, word identification, and spelling would be included. Word boxes are also referred to as Elkonin boxes, in which blocks are used to segment sounds in words. Rereading story books and authentic writing in response to stories would also be used to enhance word study (Invernizzi, Juel, & Rosemary, 1996/97).

To promote fluency in reading, repeated reading and guided oral reading in small reading groups and independent silent reading were proposed for the literacy program (Fontas & Pinnell, 1996). Since one of the best ways to develop automatic, fluent reading is to spend much time in reading (Allington, 2001), the teachers and administrators set a schedule of 180 minutes for reading and literacy activities each day. Readers Theatre productions were also proposed to promote fluency, speed, accuracy, and proper expression by the children (Martinez, Roser, & Strecker, 1998/99).

Instruction in vocabulary and in comprehension would be used to foster understanding of text, and wide reading to build vocabulary, language, and world knowledge would be encouraged (Beck & McKeown, 1991). Incorporating the listening and speaking competencies of students would be adopted with teacher read-alouds (Tompkins, 2002). Creating adventures and stories during Writing Workshop would promote vocabulary development and comprehension (Stewart, 2002). Shared book experiences (Eldredge, Reutzler, & Hollingsworth, 1996), flexible groupings of students (Stewart, 2004), and individual and group projects (Tompkins, 2002) would be used to encourage vocabulary and comprehension development.

Recognizing the necessity of family and community support for reading (Chall, Jacobs, & Baldwin, 1990), school leaders surveyed parents and teachers for their opinions and attitudes toward literacy, asked community leaders and experts to function as literacy resources, and invited local home and center-based child care facilities to become literacy program participants. Parents, teachers, local community leaders, and experts indicated support for the proposed literacy program.

To address possible barriers to implementation such as teacher resistance to change and resultant low morale, school leaders realized the importance

of developing the collective efficacy of teachers. Collective efficacy denotes the beliefs of teachers that they, as faculty members, can implement a program of change necessary to have positive effects on the achievement of students (Goddard, 2001). To encourage teacher innovation, promote positive change in school culture, and equip teachers with critical literacy information and instructional strategies, a staff development program was designed to meet the unique needs of the teachers at the school.

Inservice Training and Development

Researchers have found a relationship between teachers' belief systems and their reading practices (Foertsch, n.d.; Levin, 2001). To develop teacher beliefs, norms, and values that endorse student and staff learning, a positive school culture must be understood and shaped. There are common characteristics of school cultures in which teachers value student achievement, implement rigorous curricula and instruction, and focus on students (DuFour & Burnette, 2002; Peterson, 2002). The school cultures contain:

- a widely shared sense of purpose and values;
- norms of continuous learning and improvement;
- a commitment to and sense of responsibility for the learning of all students;
- collaborative, collegial relationships; and
- opportunities for staff reflection, collective inquiry, and sharing personal practice (DuFour & Eaker, 1998; Fullan, 2001; Hord, 1998; Lambert, 1998; Stein, 1998).

Inservice training and development to enrich school culture must also include changes of teaching behaviors. These changes include the use of new materials, incorporation of new instructional practices, and modification of teachers' beliefs (Foertsch, n.d.). Teachers' certainty about their instructional practice has been found to be one of the most important factors in determining student achievement (Darling-Hammond, 1997; Rosenholtz, 1989). According to Sparks and Richardson (1997), without the professional development of teachers, change in instructional practice will not likely occur. Based on the National Staff Development Council's (2001) Standards for Staff Development, the data-driven and research-based staff development program was designed to deepen educators' content knowledge, to provide research-based instructional strategies, to foster high expectations for all students' academic achievements, and to furnish skills or strategies for parent and family involvement.

Recognizing that innovations in teachers' practice need to be fostered through learning opportunities that last longer than one day (Darling-Hammond, 1997; Lieberman, 1995; Rosenholtz, 1989), the school leaders set a minimum of 45 clock hours annually to train teachers in the implementation and assessment of literacy instruction. Educational experts from the Best Practices Institute in Atlanta offered training and materials in early literacy development, in using assessment instruments to align standards and curriculum, and in the awareness of exceptionalities for teachers seeking more effective methods of literacy instruction.

A Literacy Coach scheduled monthly staff development sessions. Faculty members received inservice education and materials in the areas of teaching phonemic awareness and comprehension strategies; in vocabulary, fluency, and motivational teaching; and in using assessment to guide reading instruction. Teachers were given weekly grade-level planning time and participated in professional book studies after school hours. Inservice development, therefore, enhanced school culture by fostering the use of new materials, new instructional practices, and positive beliefs by teachers concerning student achievement.

Inservice professional development sought to increase the collective efficacy of teachers by preparing teachers for necessary changes in their classrooms. Since research supports the importance of sustained and intentional investment by teachers in learning to improve their classroom practice (Richardson, 2005), inservice strategies focused on the collective efficacy and morale of teachers. Results of periodic Needs Assessment Surveys indicated positive changes in teachers' beliefs and behaviors. The teachers developed a focus on continuous improvement in teaching and learning, a commitment to student achievement, collaborative relationships among colleagues, and shared practice and reflection.

Program Implementation

The program implemented in the southeastern urban school included approximately 220 students and 10 teachers in kindergarten through third grade. Ninety-eight percent of the students were culturally diverse, 69% of the children received free or reduced lunches, and the mobility rate was 26%.

To implement the findings of scientifically based reading research, an instructional environment conducive to learning to read was crucial (Snow, Burns, & Griffin, 1998). During the 180 minutes of daily literacy instruction, the students were provided instruction and experiences with word study, fluency, vocabulary, and comprehension.

Instruction Components

Instruction in word study addressed the components of phonemic awareness and phonics. Phonemic awareness, the basic understanding that speech is composed of discrete, individual sounds, provides the groundwork for phonics. Instruction also addressed the set of relationships between the sounds in speech and the spelling patterns of written words, or phonics (Tompkins, 2005).

Using best practices for student engagement, teachers taught children to identify and categorize phonemes, to blend phonemes into words, to segment words into phonemes, to add or delete phonemes to create new words, and to substitute phonemes to make new words. Using the letters of the alphabet, the students participated in sound-matching and rhyming activities. Children identified the sounds at the beginning, middle, and end of words and selected pictures or objects that did and did not include the isolated sound. Sound-blending activities engaged the students in "putting together" sounds to form words. Wordplay books and songs stimulated the

students to identify and segment sounds. The use of Elkonin boxes, or word boxes, demonstrated to students each sound in the name of an object.

Since systematic and explicit phonics instruction with meaningful opportunities for reading and writing is considered efficacious for student learning (Adams, 1990), teachers implemented lessons with a defined sequence of letter-sound relationships. Students learned sound-symbol correspondences, how to blend sounds to segment sounds and decode words, onset-rime relationships, and phonics generalizations or "rules." Teachers explained many phonics concepts using authentic literacy activities and as part of classroom reading and writing activities. Although a basal reading series was available, teachers used the basals primarily for mini-lessons and as resources for instruction.

Fluent readers read text accurately, quickly, and with expression. To promote students' development of fluency, teachers provided models of fluent reading, had students participate in repeated readings, and furnished opportunities for students to read books at their independent reading levels; i.e., relatively easy text for the reader with a 95% success rate (Armbruster, Lehr, & Osborn, 2002). Repeated readings included the use of choral or unison reading, partner reading as students took turns reading to one another, and student-adult reading as the adult modeled fluent reading followed by the student reading. Teachers also designed lessons for fluency that incorporated Readers Theatre. Reading from scripts rich in dialogue, students rehearsed and performed plays for peers, other classes, and parents. Without using props or materials, students portrayed characters or narrators as they shared a story or book. Readers Theatre promoted meaningful experiences with rereading text and practicing fluency. Readers Theatre also promoted cooperative social interaction and set an appealing purpose for reading. To promote fluency, teachers also created guided reading groups, provided independent reading time in their classrooms, and recommended that students join the local library to read more outside of school.

Vocabulary knowledge is vital to reading success and may be learned indirectly or directly by students. Most vocabulary is learned indirectly; to foster vocabulary development, teachers read to students daily, encouraged students to read on their own, and engaged students in daily conversations. Teachers provided direct instruction of vocabulary by using word walls, word posters, word maps, word sorts, word tea parties, and dramatizations of words. Teachers also used dictionaries and other reference aids; taught the use of context clues; used root words and affixes; and presented homonyms, synonyms, and antonyms. In addition, daily reading and writing activities for authentic tasks such as journal and story writing furnished students with important purposes and activities for vocabulary development.

The purpose of reading is comprehension, or understanding. Teachers promoted focused and active reading by setting a purpose for reading, generating and answering questions, incorporating graphic and semantic organizers, focusing on story structure, and summarizing important information. Teachers activated students' prior knowledge and encouraged the use of visual imagery by students. Many opportunities with Reading and Writing Workshops enhanced student participation and comprehension of

authentic text. Modeling and think-alouds by teachers demonstrated to students how to read for comprehension, and guided practice assisted students in applying new learning. Students worked together as partners or in small groups to complete assigned tasks and to foster comprehension of text. Thus, teachers designed instruction for students to learn multiple comprehension strategies.

To enhance instruction in word study, fluency, vocabulary, and comprehension, an experienced, well-trained Literacy Coach worked with teachers and organized a Reading Resource Center with stimulating literacy materials. From grant funds, the coach purchased a myriad of trade books at different reading and interest levels. Other instructional materials, including puzzles, phonics and literacy games, magnetic letters and props, flannel boards, activity cards, and letter and word tiles, were purchased and shared with teachers. Computer software was purchased for the literacy laboratory used by teachers for classroom instruction. To promote family involvement and support, the Literacy Coach made the resource materials available for check-out and use by families within the school.

Preservice Training and Development

As an integral part of the REA grant, a local university provided preservice teacher candidates with training in diagnostic and prescriptive reading instruction using authentic case studies. An associate professor of education and program coordinator for the Graduate Reading Endorsement Program at the local university supervised nine upper-level preservice teachers conducting reading assessments of the children at the school. Then, the preservice teachers carried out appropriate one-on-one intervention strategies based on the young readers' assessment results. During the intervention sessions (averaging 2 hours per week for 10 weeks), each preservice teacher customized reading instruction for the individual student; thus, it was emphasized that one method of instruction is not sufficient for all children. To adapt reading instruction for an individual student's need, the preservice teacher translated symptoms into a clinical diagnosis that could be addressed through reading strategies identified by the National Reading Panel (2000). The assessments targeted the following skills and abilities related to reading performance:

- preliteracy skills—e.g., phonemic awareness, letter recognition and identification, concept development, print concept
- interests inventories to assist with selecting instructional materials
- attitudes toward reading
- phonics and other word-decoding skills
- physiological aspects of reading—auditory discrimination and visual discrimination
- word recognition by grade level and accuracy while reading
- comprehension—prompted and unprompted memories, passage retelling
- reading fluency
- vocabulary—receptive and expressive
- reading potential

Classroom teachers received information concerning each child's assessment results in a matrix format as well as suggested (NRP-endorsed) intervention strategies based on assessment results.

Family and Community Involvement

The final program component, family and community-based literacy support, involved adult and parent education in teaching young children important literacy skills. A new Family Literacy Coordinator offered each family support in literacy training and provided increased awareness of available community literacy support agencies. The Literacy Coach and the Family Literacy Coordinator collaborated with support agencies that promote literacy education and parenting skills, including public libraries, parks and recreation facilities, and local child care centers. The Family Coordinator provided information for parent access to library cards for their children, GED classes, food stamp programs, bus passes, technical training, and other community offerings. Community leaders, including the mayor of the metropolitan city, visited the school to emphasize the significance of literacy-related activities and to highlight awareness of literacy supports in the community.

Family and community support efforts fostered a welcoming school climate by including parents and community members in school meetings, by purchasing and distributing books and materials for child and family utilization, and by creating an environment conducive to fun and fellowship with refreshments and conversations. A change in parents' beliefs and involvement with literacy was observed; parent involvement, which previously had been minimal, exploded as families and community members participated in Family Literacy Nights, parent workshops, Open House and orientation meetings, library nights, and literacy enrichment visits by the local child care centers. For further parent involvement and participation, family and community members volunteered at the school an average of 12 hours weekly during the grant implementation period.

To promote student achievement and to assist students and families during the summer, a literacy intervention session was offered 3 hours daily for 4 days during 4 weeks. Classroom teachers and paraprofessionals delivered literacy instruction for a maximum number of 10 students per classroom in kindergarten through grade 3. The students enjoyed nutritious lunches furnished daily at the session.

A new Parents as Teachers Coordinator visited families with children from birth to age 4 twice a month to discuss child development and to share stimulating books, toys, and materials related to early care and education. Repeated home visits during the grant implementation period assisted a total of 23 local families.

Results

Data collection and preliminary data analysis seemed to indicate that the literacy program was effective. The 10 classroom teachers collected informal data from observing and listening to students in the classroom, from reading students' learning journals, and from reviewing students' work products and projects. Used during classroom observations, teacher-made

checklists recorded greater participation in students' literacy activities and in students' understanding and use of reading strategies. Teachers also noted an increased incidence of favorable comments among students, thereby indicating an increase in students' confidence and feelings of success toward literacy activities. As teachers reviewed the learning journals, they noticed increases in length and complexity of students' writing. A review of work products and projects demonstrated greater comprehension and involvement by students.

The formal state assessments of Annual Measurable Objective in Reading/English Language Arts indicated that the percentage of students in the category of "Basic/Does Not Meet" declined each academic year. From a high of 20% in 2002-2003, the category of "Basic/Does Not Meet" fell to 17% in academic year 2003-2004 and to 9.50% in academic year 2004-2005. The category of "Proficient/Meets" changed from 52% in academic year 2002-2003 to 58% in academic year 2003-2004 to 54% in academic year 2004-2005. The category of "Advanced/Exceeds" shifted from 30% in academic year 2002-2003 to 24% in academic year 2003-2004 and to 36.50% in academic year 2004-2005 (Georgia Department of Education, 2004-2005) (see Figure 2). Following the 2-year implementation of the REA grant and the resultant changes in the school, its teachers, parents, and community, the academic year 2004-2005 recorded a total of 90.50% of students scoring proficient or advanced in Reading/English Language Arts. Two years earlier in academic year 2002-2003, a total of 82% of students scored proficient or advanced in Reading/Language Arts. Student literacy achievement as measured by the formal state assessments increased by 8.5% in Reading/Language Arts over the 2-year period.

Because only preliminary data analysis was available, results are limited. Subsequent studies are needed and could include both informal and formal data collection with data analysis by year in school, gender, ethnicity, English-language learners, and economic status.

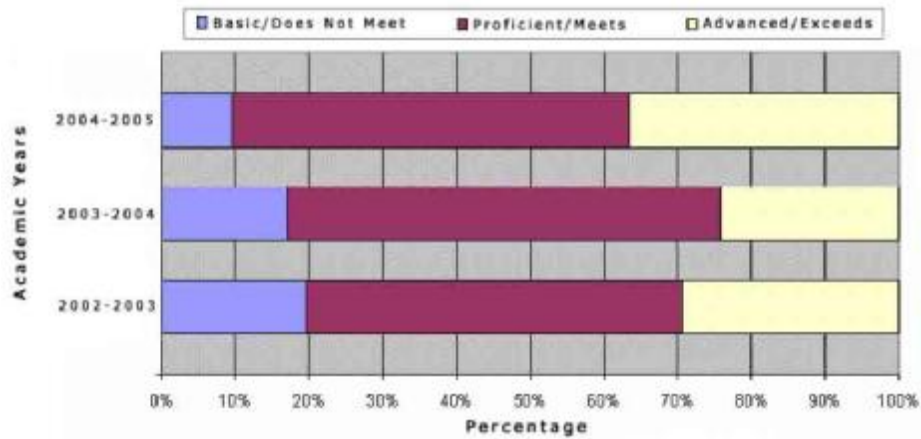


Figure 2. Annual measurable objective, Reading/English-Language Arts.

Formal data were collected from preservice intervention strategies based on assessment results from individual case studies. The preservice teachers used Bader Reading and Language Inventory (Bader, 2002) and Instructing Students Who Have Literacy Problems (McCormick, 2003) as primary sources for assessment materials. Each preservice teacher worked with his or her assigned children for an average of 20 hours—2 hours to pretest, 16 hours to implement intervention strategies based on assessment results, and 2 hours to posttest. All children participating in the sessions improved their reading abilities as substantiated by informal assessments (observation and a portfolio of student work) and pre- and posttest results.

After approximately 16 hours of one-on-one instruction, the improvement documented in the assessments ranged from learning to identify letters and letter sounds to advancing a grade level in reading performance (see Table 1). While gains were identified, it could be possible that the increases in student achievement were attributable to other components of the collaborative partnership or even to other unspecified factors. Further research and data analysis are needed.

Table 1

Table 1
Case Studies: Grade-Level Gains in Reading

	Pretest Reading Grade Level (Graded Passages)	Posttest Reading Grade Level (Graded Passages)	Grade-Level Gain
Spring 2003			
Student 1 3rd Grade	Grade level 3 Slow reading rate	Grade level 4 Some improvement in fluency	1 grade level
Student 2 3rd Grade	Grade level 3 Problems in story retelling	Grade level 4 Acceptable story retelling	1 grade level
Student 3 Kindergarten	Lower than preprimer Preliteracy stage	Preprimer Preliteracy stage	1 grade level Beginning reader
Student 4 Kindergarten	Preliteracy stage Word recognition Lower than preprimer	Preliteracy stage Word recognition Preprimer	Word recognition increased 1 level Beginning reader
Spring 2004			
Student 1 Kindergarten	Preliteracy pretest: Deficiency in literacy concepts, letter knowledge, and blending and segmentation	Preliteracy posttest: Child relocated before posttest could be administered	Incomplete case study
Student 2 Kindergarten	Preliteracy pretests – Literacy concepts, letter knowledge, blending and segmentation, phonics	Preliteracy posttest – Improvement in literacy concepts, letter knowledge, blending and segmentation, phonics	Improvement documented, but child is still in preliteracy stage
Student 3 1st Grade	Lower than preprimer grade passages	Preprimer level	1 grade level
Student 4 1st Grade	Grade level 1	Grade level 1	0 grade level On grade level
Student 5 1st Grade	Grade level 2	Grade level 3	1 grade level

Implications for Classroom Practice

The purpose of this study was to examine the effects of a collaborative urban partnership on the literacy achievement of primary students. Results of formal assessments based on required state testing and individual case studies documented increased student achievement. Informal data also suggested increased student achievement.

Although the REA grant ended at the conclusion of academic year 2003-04, the school continued its commitment to effective, research-based literacy instruction. At the Title I school, the Academic Coach, formerly the Literacy Coach, now oversees all classroom instruction. The daily 180-minute literacy schedule incorporates expository text and flexible classroom groupings together with the components of word study, fluency, vocabulary, and comprehension. Teacher inservice training is scheduled at least

bimonthly, and the local university continues to utilize the school for the training of teacher candidates. The former Family Literacy Coordinator now serves as Title I Special Education Coordinator for parents and also as Prekindergarten Coordinator at the school. The school qualified as a participant in the 21st Century Community Learning Centers (Title IV, 1997-2004) after-school program. The school furnishes academic tutoring and enrichment activities to aid students in meeting state and local standards. Community and cultural activities also help to foster student involvement and achievement (Title IV, 1997-2004). The director of the after-school program is the former Parents as Teachers Coordinator. Therefore, the elements of scientifically based reading research for classroom literacy instruction, of family and community-based literacy support, and of continuing inservice and preservice teacher education continue.

The collaborative urban partnership proved successful because it furnished school and community supports to families while it provided inservice, preservice, and resource support for teachers. Results of this study suggest that student achievement in literacy increased because of continuing support and ongoing training for teachers to implement scientifically based instruction, along with parental and community involvement. Putting the pieces of parental and community involvement together with teacher training and support positively reinforced the efforts of the school by implementing best practices to promote student achievement in literacy education. The collaborative urban partnership deftly addressed the challenges of low expectations for student achievement and lack of parental involvement since the program was delivered as a "one-stop-shop" of comprehensive supports. The partnership also seems to have enhanced the collective efficacy of teachers and resultant morale by altering the beliefs and behaviors of participating teachers; the beliefs and perceptions of parents and community members concerning literacy education were also strengthened.

While this study included information that might be helpful to teachers, leaders, and community members concerned with primary literacy achievement, more research is needed. Additional studies with larger sample sizes in differing geographical areas and in rural locales would be informative. If further research produced similar findings, perhaps a collaborative rural partnership could be established for areas that are predominantly composed of diverse, low-income students. With the availability of rural community supports such as local libraries, health departments, literacy and faith-based organizations, together with Title I funding, perhaps a rural school could access distance learning opportunities for teachers, offer after-school programs in the community, and enrich local child care facilities for preschool children.

In summary, the development of a collaborative urban partnership met the challenges of teachers' low expectations for student achievement and a lack of parental involvement; teachers' collective efficacy and morale were also tackled. The implementation of a scientifically based program of literacy instruction grounded in school and community supports resulted in

increased student achievement for primary-grade students. The results of the study indicate a need for further examination of collaborative partnerships and their roles for increasing student literacy achievement.

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"Who's the Boss?" Young Children's Power and Influence in an Early Childhood Classroom

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Abstract

Using classroom observations and teacher interviews, this study examined how three young children, considered classroom leaders by their teachers, created complex dilemmas for their teachers through their interactions with teachers and peers. Findings showed that the children's powerful influence on their peers could be both positive and negative, and they could use their influence to agitate other children in ways that challenged teachers' thinking about building classroom community. The findings present an opportunity to address the influence of power dynamics in daily early childhood classroom practices and to expand on teachers' thinking about ways to negotiate power in relationships as they work to build classroom community.

Introduction

The purpose of this study was to examine the role of power dynamics in child-child and teacher-child social relationships and their impact on the development of social community within an early childhood classroom. Three teacher-identified young leaders from a previous study (Shin, Recchia, Lee, Lee, & Mullarkey, 2004) were used as focus children in this study, with the aim of exploring the ways in which power comes to play a critical role in social relationships and how it can inadvertently influence classroom experiences for both children and teachers. It is important for early childhood teachers to think about the role of power because early childhood classrooms, like other communities, are social environments where relationships are complicated by the power dynamics at play between different individuals. Power relationships in early childhood classrooms are usually discussed within the context of teacher-child relationships, especially as they relate a teacher's loss of control when managing children's behaviors. The role of power dynamics is rarely connected to building a social community within the early childhood classroom, where all the participants share power beyond teacher-child relationships. The complex web of relationships, influenced by power dynamics, is difficult yet important to address in order to examine social relationships in a more meaningful way.

Support for the creation of democratic classrooms has been elaborated as a foundational component of early childhood practice (Moss, 2007). However, we believe that power dynamics are directly connected to broader

issues in the development of social community, such as inclusion/exclusion (Seban, Pierce, Cheatham, & Gunnar, 2003) and the empowerment of children to make decisions (Erwin & Kipness, 1997). We believe that early childhood practitioners must look deeper into the ways that power relationships play out in their early childhood classrooms for both teachers and children. For example, children could take the role of class clown and use humor to negotiate their power by shifting the course of classroom conversations and creating contexts for other children to follow their agenda (Hobday-Kusch & McVittie, 2002). This study focuses on the role of power dynamics and acknowledges the feelings of discomfort for teachers in ways that we hope will help them raise critical questions related to building a social community.

Foucault (1977) states that power relationships are not constant but always in motion, implying that we create power as we engage in relationships and that at times that power shapes our own actions. Early childhood classrooms, like other communities, are social environments in which different individuals with diverse personalities and a wide range of abilities come together to create a complex web of human relationships. Within the context of social interactions, some children may have more power and influence over other children, and sometimes over teachers, setting the agendas during group meeting times and free play, regulating the minute details of physical space and time, and influencing who is included and excluded. One example of this type of interplay can be seen during circle time in an early childhood classroom, where it is a common practice for teachers to provide opportunities for all the children in the group to share their ideas and thoughts. However, sometimes teachers need to regulate individual children's power within the group, particularly those who may want to push forward their own agendas, in order for all the children's voices to be heard equally within the time constraints of the classroom schedule.

When considering power dynamics in the classroom, we affirm that power is created and circulated as a result of interactions and relationships, rather than a fixed entity that is possessed by a group of people. In a sense, children gain power in relation to the extent to which the teacher yields her own power. In the classroom observed in this study, teachers' acknowledged the selected child leaders as powerful (see Mullarkey, Recchia, Lee, Lee, & Shin, 2005, for a further elaboration of teachers' descriptions of the children). We viewed the teachers not only in their traditional roles of "facilitators" or "scaffolders" but also as power holders who create boundaries for children. Young children were also seen as powerful social negotiators who impact others' experiences. In some situations, teachers may find themselves in power struggles with children. We call these situations "dilemmas," a term that emphasizes a state of uncertainty or perplexity that requires a choice between equally unfavorable options. "Subjectivity" is applied as each case is constructed as a dilemma through the researchers' perspectives. For example, as described above, during circle time when one child wants to dominate a conversation and set an agenda for the group discussion, a teacher may face a dilemma between honoring the

child's preference and silencing the child's voice to include perspectives of other children. No matter what the teacher does in this situation, there is something to be lost. The bigger and more troubling issue is to determine when to support the individual child and when to support the needs of the larger community—to determine when the rights and privileges of one student are infringing on the rights and privileges of others (Goodman, 2000).

Other researchers, such as Goodman (2000, 2002) and Ryan and Grieshaber (2004), have addressed complex dilemmas in early childhood classrooms, raising questions about common practices regarding such issues as peer acceptance/rejection, teachers' responses to diversity, and the issue of power within teacher-child relationships. Grieshaber and Cannella (2001) have also discussed the importance of deconstructing underlying values, biases, and beliefs that generate particular views about best practices in early childhood classrooms. However, although these researchers raised these critical issues, they did not fully explore in their work the classroom contexts in which relationships intersect to create a whole community. This study not only raises similar issues but interweaves and embeds them within this particular classroom context. As we looked deeply into our data, we found examples that led us to explore beyond the surface level of the social interactions within this preschool classroom. This study provides a unique opportunity to examine everyday practices, addressing how teachers can be influenced by young children's ideas and behaviors, and what happens when teachers become uncomfortable, and sometimes afraid of losing control, in response to particular children's powerful presence. The following research questions were addressed:

How do the behaviors and interactions of particular children, identified as young leaders, affect other children's experiences in the preschool classroom?

In what ways do these children's behaviors create dilemmas for teachers as their social interactions are colored by power dynamics that challenge teachers' ideas about creating classroom community?

Methods

Setting

This study was conducted in the preschool classroom of a university-affiliated child care center in New York City, which enacts a flexible and primarily child-centered, play-based curriculum. The classroom studied served a mixed-age group of 3- to 5-year-old children and followed an emergent curriculum philosophy. As described in their interviews, teachers worked hard to provide an environment that supported and responded to children's ideas, while building a sense of community in the group (Mullarkey et al., 2005). Approximately 14 children, 2 head teachers, and several assistant teachers were in the classroom at the time of the study.

Participants

This study is based on classroom observations and individual interviews with the two head teachers in the preschool classroom. Both teacher

participants were European American women in their late 20s to early 30s with several years of previous experience with this age group. In an initial interview, teachers were asked to identify young leaders in their classrooms (for further description of this interview process, see Shin et al., 2004). Teacher 1 selected Calvin and Jackie, while Teacher 2 selected Louis and Jackie. Calvin was a 4-year-old African European American boy, Louis was a 4-year-old European American boy, and Jackie was a 4-year-old European American girl. These three children were selected as focus children for the present study on power dynamics because of their powerful presence in the classroom, as identified by the teachers.

Data Collection

This study emerged from a previous study focusing on early childhood leadership (Mullarkey et al., 2005; Shin et al., 2004) conducted by a team of seven doctoral students and a faculty advisor. During phase one of the study, each teacher was interviewed individually for approximately 30 minutes. Interviews began with questions regarding general background, educational philosophy, and thoughts on leadership and young children (see Mullarkey et al., 2005). The conversation then turned to specific children in their classrooms and their leadership styles, with each teacher providing illustrative vignettes, discussing an individual child's behavior, and reflecting on events and their responses to them. Interviews were audiotaped, transcribed, and reader-checked by the participating teachers.

During phase two of the study, once leaders were identified, data were gathered about the children through natural classroom observations over a 6-week period of the spring semester of the school year. Each child was observed once a week for 30 minutes. Observations were recorded as a running record of social interaction and done at different times of the day in order to capture various aspects of children's experiences. Two additional videotaped classroom observations were also recorded for each child and included in the data analysis. Thus, our study included a total of 24 classroom observations.

Data Analysis

Following our initial analysis focused on early childhood leadership, two members of the original research team (the authors) had further questions about the role of power in creating aspects of the classroom social dynamics. We re-examined the original data in an attempt to deconstruct the ways that children and teachers used power to negotiate relationships and influence the social context of the classroom. The researchers analyzed data collaboratively. This qualitative data analysis process was complex, elaborate, and interpretive, bringing meaning to the data. Both researchers read all the data several times with great care and then examined the data to identify emerging themes, recurring ideas or language, and patterns of teachers' and children's behavior through the analytic process (Marshall & Rossman, 1999). All emerging themes were discussed and compared. The research questions were designed to explore complex issues of power dynamics based on the teachers' reflections on multiple levels as well as our classroom observations. Data gathered from observations of each child were

examined alongside relevant excerpts from teacher interviews. Both a case-by-case and a cross-case analysis were carried out. Each case study attempted to describe not only how teachers conceptualized classroom leadership but also how teachers responded to the children's presence and behavior in the classroom.

Findings

Findings are presented in a case-study format in response to the research questions in order to highlight how individual children exercised their powers in different ways. Each case is described in greater detail below, supported with actual anecdotes from classroom observations and excerpts from teacher interviews.

Calvin

Using Playful Silliness to Influence Peers. Calvin was a dynamic, outgoing, and charismatic classroom leader whose creative sense of humor was quite attractive to other children (Shin et al., 2004). However, his silly behavior often led to rough play with other boys, sometimes creating a challenge for teachers when this rough play did not appear safe from their perspectives. During the teacher interview, head teacher #1 described how Calvin influenced peers:

...at the lunch table, he'll like hit himself or make silly words, or maybe a little more in an adult-tolerable way he'll tell knock-knock jokes and then inevitably within like 4 minutes half the class is doing that also.... Also, ... well, recently they've been doing a lot of running games in the dance space.... So if he starts to chase another boy, then almost everyone will start following him.

What started out as Calvin being silly could escalate into physically rough and aggressive play, which was sometimes intimidating to other children. With his powerful way of exerting energy, he sometimes took over other children's physical space, particularly when teachers were on the periphery of his activities.

Special Relationships Become Exclusive. Calvin had strong preferences toward several boys in the classroom, and a more critical (and somewhat controversial) issue arose as the researchers observed the ways that he used his power to clearly express who could be included in (or excluded from) their play. The following examples illustrate Calvin's selective choices.

Anecdote #1

"Calvin, Calvin, Calvin," Ira calls. "I'm talking to you, Calvin!"

Calvin does not respond to Ira. Instead, Calvin reaches over and takes a Spiderman cup from Harry, who quickly turns to look at him. Calvin smiles and puts it back. Harry smiles.

"Calvin, Calvin," Ira looks directly at Calvin, waving a large plastic bottle of orange juice in front of him while calling his name.

Calvin does not look up. Calvin leans toward Harry, who is sitting on his right, and says something. Harry smiles as Calvin speaks.

Ira calls out again, "Calvin! Talk to me!"

Calvin replies quietly without looking up, "No."

Ira asks Calvin, "Do you use the bathroom?"

“Stop it!” Calvin replies. “I don't want to talk to you.”

“Calvin, Calvin,” Ira calls again, waving his juice.

Hana (TA) intercedes. “Calvin is not being such a good friend to you right now. Show someone else who's interested,” she tells Ira.

“Calvin,” he continues.

“OK, OK,” Calvin says, looking up. “I'm not talking to you.”

In the example above, it is obvious that Calvin openly ignored Ira's attempt to initiate play with him, while he showed a friendly response to Harry, one of his special friends. Maintaining his special relationships often resulted in excluding particular children from the boys' play. Because Calvin easily expressed his like/dislike toward peers through his powerful verbal communication, it was quite obvious who was in and out of Calvin's play. In this case, the TA allowed Calvin to choose to ignore Ira by re-directing Ira rather than requiring Calvin to respond to him.

Teachers' Concerns about Classroom Safety and Respect for Others. Calvin drew the teachers' attention by constantly testing them and was a leader who challenged the teachers' ability to bring their educational visions to life in the classroom (Mullarkey et al., 2005). Our observations often illustrated how Calvin pushed teachers' boundaries regarding safety and appropriate ways of engaging with peers. The teachers were very aware of the ways in which Calvin's active energy could become destructive. The following excerpt from the interview of head teacher #1 suggests the kind of “power struggle” she felt in her relationship with Calvin:

To be honest, when he's leading the kids in a sort of very silly way I have a really hard time with that. And sometimes it escalates and someone gets hurt, but sometimes ... it's just ... I don't think I've been doing a good job of doing this overall, but what I've really been trying in the last week, is to redirect him, but very subtly....

Calvin had a way of inciting situations that caused the teachers to respond to him by reinforcing rules. Often the teachers responded to Calvin by instructing him about appropriate, safe ways of being in the classroom. What follows is a good example of another kind of power struggle that ensued between the teachers and Calvin, which reflected concern about his ways of being disrespectful to peers. In this example, Jackie, another identified leader in the classroom, is worried that the boys are talking about her as they whisper quietly to one another. She seeks the teacher's help:

Anecdote #2

Head teacher #1 pulls up a small chair and sits down between Harry and Ira, almost across from Calvin. “A secret is something that's only between two people,” she remarks. “What makes it good to have a secret? Why do you think you need to have a secret?” she asks Calvin.

“Because I never told her,” he replies, without looking up.

“So it will be a special thing?” Head teacher #1 continues. “You want it to be a special thing between you and Harry?”

“Then you have to tell it,” Jackie says.

“I think it's OK if the secret is about yourself. But when it is about someone else nearby, it can be rude,” head teacher #1 says.

Calvin looks up at head teacher #1 and calmly says, “I’m not telling Jackie,” then goes back to eating.

“Then don’t talk about Jackie because she wants to know; she has a right to know,” head teacher #1 tells him. Head teacher #1 changes the subject, “Calvin, you wanted to tell me about your new toy?”

A minute later he leans toward Harry again. Head teacher #1 stops him again. “You are not telling secrets at the table. When it’s just you and Harry (inaudible), then OK. When it’s only two people around then secrets are OK. But not now.”

“But that’s in like 10 weeks!” Calvin exclaims. “It’s a long time till that comes.”

“But it’s rude here at the table,” head teacher #1 replies.

“Then I’m not going to tell you guys,” Calvin says, folding his arms in front of him.

“You can tell out loud if you like,” head teacher #1 tells him, but Calvin returns to his eating.

“I told you all I have a secret,” Calvin says to no one in particular.

“OK, OK,” he says. “It’s not about her. It’s about the cup,” he says, pointing to Harry’s Spiderman cup.

“Then you can tell us all out loud,” head teacher #1 says.

“But then everyone will know the secret,” Calvin responds.

“Why don’t you just say it? Don’t whisper it,” she tells Calvin.

“It’s about the cup,” he repeats.

“Then just say it out loud,” head teacher #1 replies.

“Now you made me say it!” Calvin yells.

“I don’t think I made you say it,” head teacher #1 responds calmly. “That was your choice.” Calvin goes back to eating. Still looking at Calvin, head teacher #1 continues, “I don’t know, Calvin. You seemed upset all morning.” Calvin continues to eat his rice.

The anecdote above illustrates that Calvin wasn’t really talking about Jackie and seemed quite bothered by the fact that the teacher pushed him to reveal his special secret with Harry. Following Jackie’s lead, the teacher imposed a “politically correct” rule about not talking about others secretly in their presence so as not to be rude and exclude them. However in so doing, she took from Calvin his right to share a secret with a special friend. Without having a full understanding of the situation, the teacher took Jackie’s word for what the problem might be, without recognizing Calvin’s rights or giving Calvin an opportunity to fully explain his actions.

Louis

Physicality as a Powerful Influence. Louis was a physically competent leader who explored the classroom freely, making his presence known (Shin et al., 2004). Although he used few words to get other children’s attention, Louis had a powerful way of communicating using nonverbal action to interact with and influence his peers. During the teacher interview, head teacher #2 clearly described Louis’s unique leadership characteristics:

Although that’s not necessarily a positive leader ... the little boys will do anything he wants them to do—anything. Anything he’s interested in—Power Rangers, Spiderman—they’ll jump on the bandwagon. And they’ll

buy the t-shirts and the toys. And I don't think that's necessarily.... I mean, some of the kids have never even seen the Power Rangers on television, but they only play it because he's playing it.... Somehow that makes it cool. Because he knows what it is. So when we go to the park or the dance space, they're all Power Rangers.

As described above, his charismatic way drew children to him, even when Louis did not seem to plan to do so intentionally. Unlike Calvin who wanted to be the center of attention and created situations that sought out teachers' and peers' positive and negative responses, Louis had a more verbally quiet and independent way of behaving. He used more indirect strategies for engaging others and did not always respond so clearly and directly to teachers or other children.

Like Calvin, Louis also engaged in physically rough and aggressive play. Louis enjoyed Calvin as a playmate, and other children seemed especially interested in their play. When peers joined these two boys, the group play usually escalated into rough play that challenged the teachers' notions of safety. The following anecdote shows how Louis engaged in active play with peers:

Anecdote #3

Louis and Calvin hold hands and walk around. Calvin says to Harry, "It's nice to meet you." Louis says to Harry, "You are a Power Ranger." Louis shouts this to Harry several times, and Harry responds by saying, "I'm just a boy." Louis keeps saying that Harry is a Power Ranger. After going back and forth several times, Harry begins to cry when Louis pushes him. Louis walks away from Harry with Calvin. The assistant teacher calls Louis and says, "Why don't you say nice words? It's not nice to push him." Louis answers back, "I did it by accident." The assistant teacher says to Louis, "You still have to say something."

As seen in the above anecdote, Louis's powerful presence could be overbearing to some children in the classroom. In this example, Louis's agenda in the play posed a threat to Harry who was not interested in being a "Power Ranger." Louis's action brought about a response from the TA, but her focus seemed to be on pushing Louis to behave in a more socially appropriate way, without addressing the underlying power issue. Her response highlighted Louis's aggressive action but did not support Harry's need to express his own individuality or question Louis's inability to honor it.

Friendships That Openly Exclude Others. Because of their special friendship, the issue of exclusion/inclusion often became more obvious when Calvin and Louis excluded particular children from their play, as in the example below:

Anecdote #4

Head teacher #2 asks each child to pick a friend to line up with, so that they can go out to the park. When head teacher #2 calls Jen's name, Jen gets up, goes straight to Calvin, and reaches her right arm toward Calvin indicating that she wants to hold his hand. Then Ethan comes near and reaches his hands out to Calvin too. Calvin shakes his hands to say no, and points to Louis. Ethan turns around and holds hands with Brad. When Louis

is called, he smiles and makes a move toward Calvin. They hold hands. Jen couldn't find anyone to hold her hand, so she turned to head teacher #2 for help. The teacher holds Jen's hand and everybody starts walking out of the room.

Shown here, as in Anecdote #1, with their strong influence over others, the young children set an agenda that could discriminate against certain children's opportunities to fully participate. Although the teachers tried to create opportunities for free choice among the children, when Louis or Calvin responded by making choices that clearly discriminated against certain children, the teachers did not openly address their exclusivity. In these situations, which are common occurrences in early childhood classrooms, we found that teachers usually focused primarily on keeping the routine flowing, ignoring the opportunity to articulate how some children can be marginalized. From the researchers' perspectives, these are situations in which the power dynamic has an impact on social relationships and creates an opportunity for teachers to address the issue of power.

Perspectives on Safety That Restrict Freedom. Like Calvin, Louis often engaged in rough play that challenged the teachers' notions of safety because he could be quite aggressive toward other children. As revealed in her interview responses, head teacher #2 seemed to struggle with this notion of inappropriate play and was uncomfortable with Louis's way of engaging children:

Well, the Power Rangers aren't always peaceful. They sometimes hurt the other children who they deem as bad guys. They don't even know they're bad guys until suddenly they're getting ... you know ... people are there pushing them down ... usually I try to ... I'll take like a few of the boys who are sort of the followers and try to sort of build a friendship. So like maybe I might say, "Maybe Calvin and Harry want to come away and do this special activity." ... Just try to break up the group a little bit ... and not let it keep building on itself.

Louis also seemed to create a dilemma for the teachers in terms of how to define "safe" and "inappropriate" play, because children and teachers may have different perspectives on this issue. For example, it might look inappropriate from the teacher's perspective when Louis knocked the blocks down instead of building something with them, but he was very physically competent and clearly enjoyed this kind of rough play. There were situations where teachers wanted to slow down his play, and they frequently stepped in to define what was "safe." There seemed to be an ongoing struggle over how to differentiate between supporting children's active energy in their play and reinforcing appropriate, safe ways of being in the classroom.

Selective Responses to Adults in the Classroom. One interesting thing about Louis's leadership style is that he used his strong nonverbal communication skills to actively ignore particular peers and adults, making them feel almost invisible at times. The following anecdote illustrates how Louis responded selectively to different teachers:

Anecdote #5

Louis takes out the Lego container and starts connecting the Lego pieces together. Ellen (TA) comes over and asks him to move the container over a little because there is not enough room. Louis does not respond to Ellen (TA). Ellen (TA) asks Louis, “You know what, do you want to play at the store?” Louis does not respond to her and walks away to the block area. Louis takes out two animals and pretends that they are flying around. Head teacher #2 is preparing snack, and Louis looks at her. Louis comes out from the kitchen and walks to the grocery store and the resting area. He takes out the blanket and puts it on his head. Louis calls her name with the blanket on his head. Louis says, “When someone gets up, can I go and eat snack?” Head teacher #2 says, “You can use my seat.” Louis asks, “I can?” Louis leaves the blanket on the floor. He runs to the sink in the bathroom, washes his hands, and comes to the table.

In Anecdote #5, Louis did not respond directly to Ellen, a part-time assistant teacher. However, at the same time, he engaged in a friendly conversation with head teacher #2. Just as he showed a strong preference regarding children with whom he wanted to play, Louis clearly indicated his preference for teachers, evidenced in who he ignored and to whom he responded favorably. The following anecdote illustrates how he chose to ignore certain teachers' reprimands or diminish their attempts to scaffold more appropriate social behaviors:

Anecdote #6

When the “Head, shoulder, knees, toes” song begins, Louis stops dancing. He picks up a basket from the floor and puts it on his head. The assistant teacher tells Louis that it is not safe. Louis does not respond to her and walks away. Head teacher #1 tells Louis that he needs to listen to all the teachers. Louis takes the basket off his head and gives it to the assistant teacher.

Louis seemed to have a close relationship with head teacher #2. He actively participated in the activities she led and chose to be near her throughout the day. The dilemma that emerges from these situations centers on how comfortable teachers are with children's strong preferences for particular peers and teachers. Should Louis, for example, have had the power to choose which teacher he wanted to listen to and which teacher he could ignore? How did these behaviors reinforce or counteract teachers' notions regarding the power of their own voices in managing children's behaviors?

Jackie

Moving Her Own Agenda Forward. When engaged in peer play, Jackie held her own with the other children, often taking charge and enforcing the “rules” with them. Many children seemed to “obey” her orders quite readily, and even those who didn't follow her commands seldom challenged her, as described below:

Anecdote #7

Jackie goes over to two other girls saying, “Come here, I have it for both of us.” She is holding a remote control of some sort. One of the girls attempts to take the remote control from Jackie, and there is a bit of a struggle. Jackie maintains her grip, and the other girl concedes. Jackie

begins to play with two other girls and coaxes them over to the blue mat. She says, "Let's go to Princess Land," in a very excited voice. All three girls begin running around the room, laughing and smiling. Jackie is leading the other two back and forth from one side of the room to the blue mat and back again. Later, Ann arrives and joins their play. She asks if she can hold the remote control. Jackie says, "It only works for me." Ann says again, "I want to see it for now." Jackie, ignoring Ann's response, says, "Let's go to the roller-coaster ride."

At times, Jackie's demeanor, particularly with younger or more passive children, was strong enough to evoke a response from one of the teachers, cautioning her to reduce the intensity of her interactions. Jackie's persistence in pursuing her own agenda sometimes led her to impose her will on others against their wishes. In the example below, a younger child who is an English language learner works hard to let Jackie know that she is not interested in playing with her. Jackie is persistent and doesn't give up easily:

Anecdote #8

Jackie walks over to Sara (who is crawling around pretending to be a dog) and says, "Come on." She grabs Sara tight, and head teacher #1 warns her that she is playing too rough. Jackie gently pats Sara's back and walks alongside her, but Sara does not crawl in the direction that Jackie wants to go. Jackie follows alongside Sara very carefully.... Sara begins to crawl fast. Jackie says, "Run fast!" A few minutes later, Jackie gets up and says to Sara, "Come this way!" Sara does not follow Jackie. Jackie says, "Come on..." Sara walks away from Jackie and says, "No. I don't want to." Jackie asks Jen, "Do you want to be a kitty?" but Jen walks away. Head teacher #1 tells Jackie that she can ask Adam or Ethan to be a kitty, but Jackie says, "No."

Enacting the Teacher's Agenda. Unlike Louis and Calvin, Jackie's competent presence and more socially appropriate leadership style allowed her to enact her leadership role with less teacher interference. Jackie was selected as a young leader by both classroom teachers, and both described her characteristics in a positive way. In her description of Jackie, head teacher #2 said, "She always seems to take us all to another level," and head teacher #1 said, "She definitely speaks out the most ... and people follow her when she does." Both teachers acknowledged that Jackie was able to advance the classroom agenda in ways that clearly reflected their goals for the children. The teachers also saw Jackie as a catalyst for bringing the group to a higher level, and her good ideas often served as a scaffold for building on the teachers' agenda. Both teachers described specific incidents in their interviews in which Jackie was able to advance the classroom agenda in ways that clearly reflected their goals for the children:

Head teacher #1: One day when we were deciding whether to go to the dance studio or the park ... I got a clipboard and I made a chart and we went around the room together and we took a tally, took a vote. And then one day later on she overheard [the teachers' discussion] and she said, "Let's take a vote." And she ... did ... the whole thing by herself ... went around the room ... saying, "Well, the park would be good...." She's pretty influential.

Head teacher #2: I know, for example, if we're having a meeting and we're all on the rug and I need everyone to give me ideas, and everyone is drawing a blank, I can call her name.... She'll have something, something perfect. And it'll just spin the whole meeting and everyone will just play off her idea.

At times, however, it seemed as though the teachers became almost uncomfortably aware of the ways in which capitalizing on Jackie's contributions might take opportunities away from others. Jackie enjoyed being in the spotlight, and it was easy for her to land there. But sometimes the teachers needed to make extra efforts to create a space for other voices in the classroom discourse. The anecdote below is an example of how the teacher relies on Jackie to offer her great ideas but struggles to keep her from dominating the discussion. Rather than acknowledging how Jackie's powerful presence can affect the discourse within the group, the teacher chooses to selectively ignore Jackie's input after she has several chances to contribute to allow room for the voices of others to be heard. In this example, the teacher's attempt to equalize power in the discussion did not really serve to bring power issues to light for Jackie or her peers:

Anecdote #9

Teacher: "Raise your hand if you have an idea about what happened to the goldfish." (Jackie is the first to raise her hand. The teacher ignores her and gives other students a chance.)

Sara (trying to explain): "He wanted to.... (inaudible)"

Teacher (rephrases): "He wanted to swim in the water?"

Teacher: "That's one idea." (She writes the answer on the board. Jackie sits quietly and listens. The teacher asks another child for an idea, and he asks a question. The teacher reminds the children that they have to raise their hands. Jackie lifts her hand up high.)

Teacher: "Jackie, what is your idea?"

Jackie: "My idea is that she died."

Calvin: "I was going to say that."

Teacher: "It doesn't matter who gets to say it. That's Jackie's idea, but it could be your idea too." (She writes it down.) "So I wonder why he died."

Jackie (very ready to answer): "Because the water got too hot."

Teacher: "Maybe the water got too hot. Somebody told me that over the weekend the room got very warm, and we know that the goldfish do not like the hot water. So, Jackie, that's a good idea. Maybe the water got too hot."

Adam: "Maybe it got very, very hot."

The teacher then tries to call on others to express their ideas. She brings the discussion back to the idea of the water being too hot. She then talks with the children about replacing the fish. Jackie continues to try to offer suggestions by interrupting and even raising her hand, but the teacher chooses not to call on her.

Summary

As described above, although these three children exercised their power in different ways, across cases there are overarching themes in response to the research questions. In response to research question one, we see how

these young leaders—with their creative ideas and competent skills—can lead other children to more interesting play themes and bring play and discussion to a higher level. On the other hand, the children's powerful influence can also become very domineering, limiting opportunities for other children's ideas to be heard and fully integrated into their play, and making it difficult for other children to take initiative. When classroom leaders have the opportunity to make choices that can impact others, questions of inclusion and exclusion arise, and these questions challenge early childhood teachers to think more deeply about social justice issues in their classrooms.

In response to research question two, interview data indicated a mismatch at times between what teachers envisioned a preschool classroom community to be and how actual children behaved within the classroom context (Mullarkey et al., 2005). For example, head teacher #1 discussed how Calvin was not the leader she envisioned, describing his behavior as "definitely not what the teacher would like him to do" and "pushing the limits to see what he can get away with." Also, head teacher #2 indicated that Louis was not "necessarily a positive leader." Although neither teacher expressed any negative comments about Jackie's leadership style directly, nor discussed specific ways that they might need to discourage her as a leader, Jackie's leadership style did not always fit the teachers' visions of their early childhood classroom. One teacher indicated this view in her telling response in the teacher interview, "...we have a little girl who can even be very influential with me and I'm not always aware of it..." From the teachers' perspectives, these young leaders stirred up other children in somewhat uncomfortable ways. Their compelling presence in the classroom could upset the power balance and even usurp the teachers' power at times.

For teachers who aspire to create a democratic community where all the children are respected and included, children like Calvin, Louis, and Jackie can create challenges. Because these young leaders hold great social power within the classroom, teachers' ways of responding to them can set a powerful agenda for all of the classroom children to follow. Our findings raise interesting, yet difficult questions:

To what extent, or under what circumstances, can or should teachers allow young children to exclude certain peers?

Must early childhood teachers insist that children be nice to or include everybody for the purpose of fairness?

When young leaders strongly push their own ideas forward, sometimes in ways that can disadvantage others, how can teachers foster a community where all the children's voices are heard?

Our findings indicate that teachers' responses in situations that raised these questions were frequently inconsistent or indirect in addressing issues of power.

Discussion

Through a careful analysis of classroom interactions, we see how teachers may inadvertently empower some children while disenfranchising others in the ways that they encourage or discourage particular classroom behaviors. We do not intend to blame teachers for these actions. On the

contrary, our observations point out how easy it can be for teachers to react to situations in the heat of the moment without reflecting upon whether they are unconsciously responding differently to children with powerful voices, compared with children who are marginalized. Real anecdotes from the classroom were presented to illustrate typical classroom situations, giving insight into dilemmas that many teachers face on a daily basis. It is our hope that these findings will help teachers think more deeply about their professional roles and responsibilities (Katz, 1984) as agents and negotiators of power in their classrooms.

Although the teachers in our study (Mullarkey et al., 2005) were able to envision ways to facilitate an ideal social environment where all children, including those from diverse backgrounds and with a wide range of abilities, can have equal social opportunities and share power, the everyday challenges they faced with the real children in their classrooms made it difficult at times to bring their visions to life. Our teachers' responses to the most powerful children in their classroom showed that in order to empower all children, sometimes it was necessary to disempower some children, going against the children's wishes and their own ideals. Best practices in early childhood teaching exemplify the teacher's role as an empowering agent in her work with young children. Because of the dynamic and fluid nature of power, however, no one person can always be empowered, and both teachers and children are able to disempower each other in everyday classroom situations. The nature of these disempowering interactions can easily lead to a sense of discomfort in teachers, as they reported in our study.

Our observations demonstrated ways that teachers often ignore this aspect of power dynamics, missing opportunities to raise critical questions about their own and children's behaviors. We believe these feelings of discomfort experienced by teachers must be recognized and validated before they can become opportunities for learning how to share power. These uncomfortable moments can be used as a catalyst for reflection and transformation. Teachers can actively reflect on their beliefs and practices in relation to children's choices, which can emerge in unexpected ways.

Furthermore, this study deconstructs some taken-for-granted early childhood practices. For example, recommended practices in early childhood (Bredenkamp & Copple, 1997) emphasize the value in creating curriculum that supports children's initiations, but these recommended practices do not fully consider the role of power dynamics in the early childhood classroom. While early childhood educators emphasize "child-centered" and "emergent" curriculum, we often fail to fully recognize the ways in which different children's voices contribute to determining the curriculum within a dynamic, play-based classroom environment. If individual children are perceived as having diverse minds, bodies, strengths, and needs, can there be a single or simple understanding of "child-centered" practice? The use of this term seems to operate under the assumption that it is all about the children. But in the day-to-day world of an early childhood classroom, teachers ultimately have to make decisions and be responsible for outcomes. Furthermore, within a dynamic classroom, the child is not

always at the center; rather, power shifts back and forth between teachers and children. Our findings encourage a rethinking of the term “child-centered” and a move toward a “community-centered” classroom that emphasizes the importance of shared power. When creating “community-centered” curriculum, it is important to include a place for teachers' power and to reflect deeply on how power is shared among and shifted between teachers and children.

Recommendations

This study raises a critical question faced by early childhood teachers—when children who take on powerful leadership roles in the classroom use their status to create uncomfortable situations for their peers and their teachers, what are the implications for building a social classroom community? Through the lens of postmodernism, teachers are encouraged to consider their own values and interests in framing classroom practices and to view teaching and learning interactions from multiple perspectives (Ryan & Grieshaber, 2005). One of the teachers' crucial roles is to reflect upon the issue of when and how to support children to be empowered. When classroom practices overly restrict children from expressing their feelings and desires in the name of “being nice to others” or “facilitating classroom management,” what messages do we send children about honesty and leadership (Goodman, 2000)? As Goodman (2002) reminds us, if our goal is to raise children as critical thinkers rather than obedient listeners, we must give them opportunities to be actively involved in experiencing moral dilemmas and making moral decisions. However, if teachers honor children's choices without providing opportunities to critically analyze their consequences for others, or fail to raise children's consciousness about the impact of their choices, are they truly supporting opportunities for all of the children to share power in the classroom?

On a practical level, it is important for teachers to engage in dialogue with children to present and validate multiple points of views. In order to accomplish this goal, teachers must first be able to trust children to find their own solutions with peers. Teachers must also be role models for children, demonstrating how power can be shared, for example, through thinking out loud with other adults as a model for the children. Creating opportunities within the classroom for joint problem solving between teachers and children can also serve to scaffold more meaningful peer interactions and provide a forum for children whose voices are heard less often. Through these actions, teachers can influence the day-to-day quality of all children's social experiences within their classrooms.

Finally, our findings raise interesting questions about the role of power dynamics in the early childhood classroom and their influence on issues of diversity, community, and social justice. As teachers strive to meet the multiple needs of young children in their classroom through “developmentally appropriate practices,” they must not lose sight of this “hidden curriculum.” In order to create early childhood classroom communities that truly embrace diversity and empower all children to find their voices, teachers will need to make a conscious effort to bring issues of

power in from the shadows by articulating them with and for young children.

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Observing Children's Stress Behaviors in a Kindergarten Classroom

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Abstract

This study used qualitative methods to determine whether kindergarten children exhibited stress behaviors during the academic work period of the day. Sixteen children (8 male, 8 female) ages 5-6 years were observed. The data consisted of classroom observations by the researcher, open-ended interviews with teachers, artifacts collected from the classroom, and specific work artifacts of the children. Results showed that a total of 9 children exhibited stress behaviors at some point during the observations. Questions raised by this research include what types of classroom environments and teacher characteristics ease or contribute to stress experienced in kindergarten and whether children in developmentally appropriate settings are less likely to exhibit stress behaviors than those in setting where developmentally inappropriate practices are predominant.

Introduction

Stress can be defined as any unusual demand on one's internal or external resources that requires an individual to utilize energy reserves in excess of what would be necessary for dealing with ordinary life events (Hart et al., 1998). Feelings of stress can be exhibited through observable behaviors such as nail biting, thumb or finger sucking, hair twirling, physical hostility, tremors or tics, nervous laughter, helplessness, crying, complaints of physical aches and pains, irritability, outbursts, and withdrawal (Burts, Hart, & Charlesworth, 1992; Jewett, 1997; Fallin, Wallinga, & Coleman, 2001; Zeigart, Kistner, Castro, & Robertson, 2001).

Previous research on children and stress has examined observable stress behaviors in the classroom including examining specific classroom situations or types of activities and how these situations affect individual children (Hart et al., 1998; Hart, Yang, Charlesworth, & Burts, 2003; Ruckman, Burts, & Pierce, 1999; Burts et al., 1992). In one study, kindergarten children were observed for stress behaviors in developmentally appropriate and inappropriate classrooms. Results were examined for effects of race, socioeconomic status (SES), and gender. Significant findings indicated that boys exhibited more stress behaviors than girls, but in developmentally inappropriate classrooms, children overall exhibited more stress than children in developmentally appropriate classrooms. Also, more stress behaviors were exhibited by low SES Black children regardless of classroom type (Burts et al., 1992).

This study was concerned with kindergarten children's observable responses to the daily stressors they may encounter in school. The following

questions formed the framework of the study: Do kindergarten children exhibit signs of stress in academic situations? If so, at what specific points or during what specific activities throughout the school day do children exhibit stress behaviors?

Methods

Data sources for this study consisted of naturalistic classroom observations by the researcher, open-ended interviews with teachers, and collection of artifacts from the classroom and specific work artifacts made by the children.

Setting

The study was conducted in a suburban private school in a major metropolitan area of the southeastern United States. The stated mission of the school includes providing an academically structured environment and recognizing the uniqueness of each child. Emphasis is placed on developing the students' mind, body, and spirit, and encouraging a personal commitment to excellence along with the desire for lifelong learning. I chose this setting because I had insider knowledge of the school and its routines and mission for education, in addition to prolonged involvement with the school as an educational consultant.

The observations reported here were conducted in Ms. Walker's kindergarten classroom. Ms. Walker's classroom was chosen, after consulting with the preschool principal, because she was identified as having the most academically oriented classroom of all the kindergartens in the school. I also spent a day observing in each of the other kindergarten classrooms to gain a sense of the daily routines in each.

Data Collection

Data were collected from three sources: participant observations in the classroom, artifacts from the classroom, and informal chats and an interview with the classroom teacher. Triangulation was achieved through analysis and comparison of observations, work samples created during the observation periods, and comments from the teacher regarding the events during the observation.

I conducted systematic observations by means of event sampling over an 8-week period, two to three times a week in the spring of the year, for a total of 18 observations. Each observation period lasted for 1 to 2 hours. I used a checklist of stress-related behaviors for quick reference (see Appendix A).

A semi-structured interview was conducted with Ms. Walker using open-ended questions (see Appendix B for framework interview). I probed Ms. Walker about the behaviors of children during various activities in the school day and about her academic expectations of the children. The interview lasted for approximately 30 minutes. I asked Ms. Walker for additional information about each child in her class and about particular behaviors that I noted while observing. Much of this information from Ms. Walker was collected during informal interactions that occurred during classroom observations.

Artifacts were collected as a source for confirming and contesting the observation and interview data. These artifacts included, but were not limited to, schedules of daily activities in the classroom, copies of children's class work and artwork, samples of worksheets handed out, and Ms. Walker's anecdotal records about children in her classroom.

Participants

Children. The 16 children (8 boys, 8 girls) in Ms. Walker's kindergarten class participated in the study. The children were all White and from families of middle to upper middle SES. At the time of the study, all children were either 5 or 6 years of age. Each child has been assigned a pseudonym for the purpose of reporting in this study.

Teachers. The school had five kindergarten teachers, all of whom consented to be part of the study. All of the teachers were White and of similar SES as the children in the study.

At the time of the study, Ms. Walker had been teaching kindergarten for 9 years. She had a bachelor's degree in psychology, a master's degree in education, and coursework for certification in early childhood education. Ms. Walker stated that she enjoyed teaching and that she continued to teach because of her love of children. She believed that the children in her classroom benefited from the academic focus of her teaching and that they needed this foundation to be successful in future academic endeavors. Ms. Walker professed belief in developmentally appropriate practices when I questioned her about her beliefs. She commented that she often felt pressure from parents in particular to help children excel academically. She also stated that she wanted the children to do their very best at all times and felt that pushing them academically in kindergarten would help them to be successful in future grades.

Ms. Walker consented to participate in this study and was welcoming to all observations, conversations, and interviews. She stated that she agreed to take part in the study because she was interested in having the children in her classroom observed to see whether any learning differences would be noticed or identified. Ms. Walker, through conversation, suggested that a child had a "learning difference" when she identified that he or she could not keep up with the academic demands of the classroom or required teacher help to complete the work.

Classroom Context

Physical Space. Ms. Walker's classroom was situated halfway up the main hallway in the school's preschool building. All of the kindergarten classrooms were located on this hallway except one, which was directly around the corner from the others. The hallways were decorated with children's creations, including works of art and written pieces. The doors to each room were generally kept open, and the feeling of the school was warm and caring. The warmth was shown in the way teachers greeted children by name as the children moved throughout the hallways. Teachers were heard asking the children about their activities and lives outside of school; they showed genuine interest in listening to the children.

Ms. Walker said that she preferred to keep her classroom door closed to lessen the noise and distraction from the hallway. Her classroom had individual desks for each child. The desks were arranged in a “C” shape, with the back of the “C” being a single row of desks and the two arms of the “C” having desks with children facing one another. Three desks were located on the back wall of the classroom behind the back of the “C.” The room also had a table that the teacher used as her desk. It was filled with stacks of paper and books and miscellaneous items brought in by children or the teacher for use in the classroom.

Areas of the room were designated as “centers.” These included a computer center with a table and two chairs and two computers; a math, puzzle, and game center with shelves arranged around a space on a rug; a reading center with a bookshelf with approximately 50 books; an art center with art supplies such as construction and copy paper, markers, crayons, scissors, scrap paper, and stickers arranged on a table with a few chairs gathered around it; a writing center with paper, pens, and crayons at a table with chairs; and a listening center at a back table with books and cassette tapes of the books.

Artifacts on the walls included a bulletin board with the caption “Look at our wonderful work.” Stapled to the board were work samples from the children. Also on the classroom walls were a “word wall” with high-frequency words; an ABC chart; maps of the United States and the continents; a “star student” poster; children’s artwork; a number and manuscript chart, used to help children in correctly forming numbers and letters when writing; a monthly calendar, used to help children identify the current date; a behavior chart, used to keep track of individual student behavior; a picture of the different denominations of U.S. money and their values; a birthday graph that identified in which month each child’s birthday occurred; a color chart, used to help children identify colors and their spellings; a spelling word list; and classroom rules. All of the charts were placed at eye level for the children except the manuscript and number chart, which was lined around the room at the top of the wall. Virtually all of the wall space was filled with these articles. In addition, one display featured a picture of a cartoon drawing of a snail, called the tattle-tale snail. On this picture, a child who was upset with a friend would write down the concern and pin it to the snail. Ms. Walker explained to me that she hoped that through using the tattle-tale snail the children could learn to vent their frustrations through writing and eventually through talking out their conflicts with their friends.

Schedule. The official start time for kindergarten at the school was 8:20 a.m. Children were allowed in the building starting at 7:30 a.m., but they did not go into their classroom until 8:00. The time between 7:30 and 8:00 was spent in a designated room where children were allowed to color or play with various toys or manipulatives. When the children came into Ms. Walker’s room at 8:00, they were allowed further free time until the 8:20 bell.

Ms. Walker called the class together each morning around 8:30. The children were given a snack break around 10:00 a.m. Lunch and recess

followed the daily morning work period. Science or social studies were scheduled for the afternoon. The school day ended at 2:15 p.m. when the children either went to their carpools or to another room in the school for after-school care.

Data from the Study

Daily Routines

As children entered the classroom each day, they were greeted by Ms. Walker. The children put away their backpacks and jackets and got out any notes or other items that the teacher requested. They were then allowed to socialize, quietly, with one another as they played with puzzles, read books, or took a turn on the computer. When the school bell rang at 8:20, they were directed to clean up, come to the rug as a group, and sit in a circle, to start the day. The day began with the pledge to the American flag and a patriotic song, followed by the teacher's announcements of the important happenings of the day ahead and follow-up or clarification needed on notes given to the teacher earlier by the children. The teacher then discussed end-of-the-day plans for each child such as extended day, carpool, or going home with a friend.

Ms. Walker then began with the calendar, weather, and everyday tasks such as tallying the days in school, counting the coins on the board, and going over the word wall, which took about 5 to 7 minutes. A different child was assigned to these tasks each day in a preset rotation. As a child performed the tasks, he or she would add the current day's date to the calendar, usually predicting the date and what part of the pattern was being continued. For example, if the January calendar had a number 1 on a snowflake, the number 2 on a snowflake, and the number 3 on a snowman, a child would be asked to predict what the number 4, for January 4, would be on. If a child was recording the weather, he or she would typically look outside to see the conditions and also look at the thermometer. The condition (sunny, cloudy, rainy, etc.) would be recorded on the weather chart. While these tasks were being completed by an individual child, the other children remained sitting quietly in the circle.

When these everyday tasks were finished, the teacher gave a quick overview of the work to be completed for the day. The overview usually consisted of the schedule for the day and the basic nature of the tasks to be completed. For example, one day Ms. Walker told the children that they would have music with the music teacher after snack and that recess would be after lunch. Before she had the children return to their desks, she told them that they had several phonics pages to be completed because they were behind in the schedule. This assignment would be in addition to their typical work for the day.

When the children returned to their desks from circle time, they opened their personal work folders, which were placed there by Ms. Walker. The folders contained all the previous day's worksheets from all curriculum areas and the current day's tasks to be completed. The children perused the folders until the teacher called for their attention in the front of the classroom. Ms. Walker then spent about 2 to 3 minutes reviewing the

previous day's work and asking the children to complete any corrections needed, with special attention given to any problems that the majority of the children may have had with the work. Attention was then quickly diverted to the work of the day. The teacher usually began with a short lesson (about 3-5 minutes) at the board for the more novel work, such as producing their own spelling sentences with the new spelling words, and then she gave a final, quick once-over of the directions for the other tasks that were more routine, which again took 2 to 3 minutes.

A typical day's task might include a lesson using the spelling words of the week. These words were selected by the teacher. For instance, one week the spelling words were blend, blond, brand, land, and lend. Ms. Walker went over the spelling words by pointing to them and having the children respond chorally. She then asked individual children to read the sentence that she had written with the spelling words. These sentences included "We blend many words. The girl's blond hair is pretty. What brand are your shoes? The land is flat. Can you lend me a dime?" Ms. Walker then directed the children to use their "best handwriting" to copy the sentences from the board. Once a week, she asked the children to write their own sentences with the spelling words. Additional work typically included two to three math worksheets, a phonics page (front and back), and some type of directed handwriting task. Ms. Walker directed the children to start by correcting their previous day's work, which had been graded with stars, checks, or a numeric notation such as "-2." They could then move on to the current day's tasks.

As the children worked, they were allowed to go to the teacher, who was seated at her table/desk, to ask questions, to get clarification of directions, or to seek general help. Ms. Walker directed the children to work without talking throughout the "worktime" and told them specifically not to seek help from one another, only from her.

When children were finished with their work, they turned it in to Ms. Walker in their folders. They were then allowed to go to a center of their choice to practice academic skills. The center options included working on a specific computer program, listening to a book chosen by the teacher at the listening center, working with white boards and markers to practice handwriting or math facts, practicing spelling words with magnetic letters, or other tasks set out by the teacher.

The "worktime" generally lasted 2 to 2½ hours. It was interrupted for snack at around 10:00 for about 10 minutes. The reading groups described below were also held during worktime, and on 2 days a week, the Spanish teacher came to the room for a 25-minute lesson.

Ms. Walker informed me that she returned the work of the previous day to children when it needed to be corrected. If a child had no mistakes on a paper, she put a sticker on the outside of the folder to show that the child had done good work. I asked if stickers were given for effort; she answered "No."

Observations in Class

Academic activities for the children in Ms. Walker's class included large group work with the teacher, small group work with the teacher, one-on-one work with the teacher, and independent work.

Large group tasks involved activities such as the morning circle time described earlier, reading the word wall, show-and-tell, read-aloud story time, and retelling of stories.

Reading groups were an example of small group work with the teacher. During worktime throughout the week, Ms. Walker would call groups of four to five children, grouped by reading ability, to work with her in reading groups. In a typical week, each child would be called to meet once or twice in a reading group. The children generally showed excitement when called to their reading groups. They moved quickly to the rug, without hesitation, to meet with Ms. Walker. A typical meeting would last 10-15 minutes, with children participating in round-robin reading. During this time, the teacher often praised the children for their reading: "Gosh, Julie, you read that without any mistakes."

Ms. Walker had structured rules for children's daily work. On the whole, the children seemed to attend to Ms. Walker during her explanations and to participate without complaint in the work routines that she put into place.

I observed that she reminded individuals and the class daily to do their own work and to not seek help from their peers. On more than one occasion, I observed children using file folders as dividers to shield their work from their peers. Ms. Walker would praise children for doing this, making a comment such as, "Thank you, Kathy, for putting up your file folder. I don't want people to take your answers. I want to know only what they know on their work, not what you know."

Ms. Walker also frequently reminded children about work habits. She seemed to focus especially on habits she thought were not compatible with hard work. For example, she commented to one child, "Carson, don't put your head in your hands while you are working. It makes you look lazy." Following this comment, Carson put his fingers in his mouth.

Many of the contacts between Ms. Walker and the children during worktime were reprimands to children for not doing their work correctly, fast enough, neatly enough, or for not listening to directions. For example, a frequent comment by the teacher was, "If you listened the first time when I gave directions, you wouldn't have to waste time by asking me now, and you could get your work done." When Ms. Walker noticed children talking to each other or looking to peers for help, she reminded them, in a matter-of-fact tone, to not talk and to do their own work. She consistently praised the child who completed the work for the day first. A typical comment would be, "Thomas is a great worker. See, boys and girls, if you do your best, you can be done first."

Observations of Individual Children

The following vignettes are of children who exhibited signs of stress in the classroom during my observations.

Mary. Ms. Walker asked Mary to stand up in front of the class and retell the story of the book read in large group the day before. Mary stood in front of the class and, in a very quiet voice, began to retell the story. She

frequently paused in her retelling, and when she did, the teacher prompted her to “go on.” Mary put her fingers in her mouth when pausing and then, when returning to the story, she twirled her hair or pulled on her clothes. The teacher stopped Mary at one point and asked the class, “Does everyone agree with Mary? Does she have the details right?” Tom raised his hand and remarked that Mary was wrong. The teacher invited him to come up to the front and tell what he remembered from the story. As he started to retell the story, Mary did not argue with him about the details. They continued the retelling together with Mary doing most of the talking and Tom sometimes joining her. Ms. Walker described both Mary and Tom as “bright children” during a subsequent conversation with me.

Tom. Ms. Walker called Tom up to her desk to talk about his work. She commented that she didn’t think that his previous day’s work was the best he could do. She continued that he needed to do his best and that she couldn’t give him stickers on his work if he didn’t earn them. Ms. Walker also stated how disappointed mom and dad would be if he didn’t have stickers on his folder. Tom looked down at his work while she was talking and pulled on his lip. He took the previous day’s work back to his desk to be corrected. Although, as noted above, Ms. Walker commented on Tom being a “bright child,” she was very stern with him when he appeared to rush through his work and make careless errors.

Kylie. Kylie approached Ms. Walker for help with the spelling word task for the day. She asked, “What word is this?” Ms. Walker responded, “If you had been listening and paid attention during directions, you would know what the word is.” She then told Kylie, “The word is “lend.” Kylie walked back to her desk with a look of embarrassment, continuing to look back at the teacher. Later, Kylie was having difficulty with the spelling sentences. She asked Ms. Walker whether the child beside her, Mary Kate, could help her. The teacher responded, “No, Mary Kate is way behind on her work. She is only on handwriting and that is not good. She should at least be on the clocks page. Besides, it is not her job to help you.” At this point, both girls, Kylie and Mary Kate, put their fingers in their mouths and looked away from the teacher.

Kylie was able to complete the assignment without error by writing the following sentences (Ms. Walker’s example is in parentheses):

Can you lend me a pencil? (Can you lend me a dime?)

My house is on flat land. (The land is flat.)

I have blond hair. (The girl’s blond hair is pretty.)

I help my mom blend the cake. (We blend many words.)

What brand is your doll? (What brand are your shoes?)

Ms. Walker later described Kylie to me as “a fine student who just doesn’t pay attention as well as she should.”

Drew. Drew sat in the back of the room in a row of three children. He appeared to be a fidgety child, frequently playing with his shoes and shoelaces or his pencil. He demonstrated a lack of engagement for school tasks, particularly during the worktime of the day. Many of Drew’s work samples were incomplete or contained errors. For instance, a math worksheet with six items was fully completed but contained one error. In

another example, for the weekly task of writing one's own sentences for the spelling words (swim, swell, swig, kept, kick), he only completed two sentences. When Ms. Walker asked him about the other three words, he responded that he didn't know what they were. Ms. Walker commented, "If you were listening, you would know what the words are. We have been working on these words all week. Can you sound them out?" With the teacher's help, Drew tried to decode the words.

Ms. Walker sent him to his desk to complete the sentences. He returned to the teacher after about 5 minutes, saying, "I don't know what to write." Ms. Walker asked him whether he knew what "swell" meant, and he responded, "No." Again, she reprimanded him for not listening. At this point, Drew looked away from her and began twirling his pencil in his hand. Ms. Walker eventually helped him create three appropriate sentences but commented to Drew, "I will have to write on your paper that you had to have me help you to do this so that mom wouldn't think you did it on your own."

Drew's work avoidance and pencil twirling may have been evidence of stress. I noted that his pencil twirling was repeatedly exhibited in response to Ms. Walker's comments during his one-on-one interactions with her.

Ms. Walker described Drew as "slow to learn" in her conversation with me. She elaborated that he was seeing a tutor during the school day twice a week to help with his reading skills. She commented that he would probably do fine in school but that his parents were slow to accept that he had any difficulties.

Jon-Jon. The children were involved in a writing task—listing four things that the children thought they were very good at doing. Ms. Walker modeled the exercise on the board for all the children. As she began to move about the room, Jon-Jon had his hands over his ears and let out a silent "aaaaaagh" as he attempted to think of four things to write. When Ms. Walker noticed him, she walked over to the desk and commented, "I don't know why you are not writing yet. This is easy work. You need to get busy." Jon-Jon pulled his shirt into his mouth and chewed on it. He sat for a few more minutes and then quickly wrote four things: baseball, soccer, reading, Xbox.

On another day, Ms. Walker asked Jon-Jon to recite the words on the word wall. She reminded the other children, "Don't help him or say anything out loud." Jon-Jon began to recite the words on the wall, the whole time pulling on the sleeves of his shirt and swaying back and forth. He proceeded through the task with few errors.

During conversation with me, Ms. Walker remarked that "Jon-Jon was an exceptional student who should do very well in school."

Preliminary Summary

Of the 16 children in Ms. Walker's classroom, I recorded evidence that 5 boys and 4 girls (a total of 9 children) exhibited some type of stress behavior during my observations. Typically the same 5 children showed stress behaviors frequently and 4 less frequently. I noted that for the most part, children who showed signs of stress did so when interacting with Ms. Walker in a one-on-one situation and when they were expected to either

perform a task in front of the large group or to complete individual assignments during “worktime.” Children were observed showing signs of stress while reading the word wall or standing in front of the class retelling a story. During each of my observations, I also noted at least 4-5 children exhibiting signs of stress during individual work times. I never noted children exhibiting signs of stress during reading group time.

I also observed that each time Ms. Walker made a comment about a child being the first to finish a day’s work, the child to whom the comment was directed would exhibit a stress behavior. In fact, most stress behaviors in the children were noted following the teacher’s comment or reprimand about quality of work or actions and behaviors during the work period.

When I asked Ms. Walker about any specific child who exhibited a stress behavior, Ms. Walker typically responded with a comment suggesting that the child had a learning difficulty or that the child was just nervous in nature, the child was not feeling well, or some similar explanation. For example, when I asked about some of the stress behaviors that Mary was exhibiting, Ms. Walker commented, “Mary has digestive issues. I think that is why she is always complaining about her stomach and wants to go to the bathroom.” When I probed further about the digestive issues, Ms. Walker said, “I really don’t know, but that it just seems like that’s the problem.” The teacher never suggested that the children might be experiencing some type of stress that might have resulted in the exhibited behavior.

Preliminary Discussion

It is likely that in any education program, some children will feel and exhibit signs of stress from time to time. Many variables within the school day may affect children, from the environment of the classroom to teacher-child and child-child interactions.

My observations in Ms. Walker’s classrooms suggest some specific sources of stress in a particular classroom for particular children. Some of the questions that arose for me during this research had to do with the potential causes of children’s stress behaviors. When a child in Ms. Walker’s class exhibited signs of stress, was the stress caused by the task at hand? That is, did the child find the task too challenging, or was he or she anxious about “performing” in front of peers? Was the stress the result of something in the teacher-child interaction? That is, did the teacher’s words, tone, or expressed expectation cause the child to feel embarrassed, tense, or anxious? Or might the children experience stress as a result of both the task and the interaction with the teacher?

The finding that some of the children in Ms. Walker’s class did not display stress symptoms leads to questions about characteristics of individual children. For example, do the children who showed signs of stress in the kindergarten also display stress in other situations at school and throughout their time away from school?

In the larger picture, other questions may need to be examined regarding kindergarten practices. For example, what types of classroom environments and teacher characteristics ease or contribute to stress experienced by children in kindergarten?

The NAEYC position statements on developmentally appropriate practices (Bredekamp, 1986; Bredekamp & Copple, 1997; NAEYC, 2009) have addressed developmentally inappropriate and problematic practices such as predominantly teacher-directed tasks, highly structured classes, large group work, paper/pencil tasks, rote learning, direct teaching of discrete skills, punishment, extrinsic rewards, and standardized assessment. These examples stand in contrast to developmentally appropriate practices, such as encouragement of active exploration, a predominance of concrete experiences, positive guidance, and interactions that promote healthy self-esteem and positive feelings toward school. Are children in developmentally appropriate settings less likely to exhibit stress behaviors than those in settings where developmentally inappropriate practices are predominant?

Other questions are raised by the finding that the kindergarten teacher professed belief in developmentally appropriate practices but practiced teacher-centered and teacher-directed education. For example, what might lead to disparity between a teacher's professed beliefs and his or her day-to-day practice? I observed that other kindergarten teachers in the same school presented the information to children differently and also had a very different atmosphere in the classroom that seemed to put children more at ease during the same academic tasks that Ms. Walker's students were doing. What factors might affect kindergarten teachers' decisions about how they will teach and how they will interact with children? For example, if some kindergarten teachers are in fact "pushing too much too soon," what are their reasons? What do they assume are the true requirements for a child to be successfully prepared for first grade and beyond?

Finally, if children's stress behaviors signal problems that concerned adults may be able to alleviate, then further investigation in other settings is warranted.

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Appendix A

Checklist of Children's Stress Behaviors*

Crying
Sweating palms

Running away (avoidance)
Outbursts
Rocking
Self-comforting behaviors
Complaints of headache/stomachache
Hair twirling
Chewing or sucking on hands or clothes/other items
Biting of skin/fingernails
Toileting accidents
Excessive shyness

*Source: Stansbury & Harris, 2000; Fallin, Wallinga, & Coleman, 2001; Marion, 2003.

Appendix B

Framework for Open-ended Interview with the Classroom Teacher

The following questions are intended as a general guide for the interview with the classroom teachers. More questions regarding child behaviors in the classroom may be asked as the researcher will follow the lead of the teachers.

What are the different types of activities children in your classroom are involved in during a typical school day?

What are the academic expectations of the children in your classroom at this school? What should they be able to “do” at the end of the year? (in reading and math, etc.)

Do you feel pressure from your administration or parents of your students to have the children perform at a certain level academically?

What do you think the parents of your students expect from their children academically?

What kinds of school-related questions, such as curriculum, programs, do you typically get from the parents of your students?

What kinds of activities do you know about that the children in your classroom participate in after school?

Do you see children in your classroom behaving differently during the various activities they are involved in at school?

Do you ever notice children showing signs of stress, such as nail biting, hair twisting, chewing on their shirts, complaints of headaches or stomachaches, during the school day? If so when, and what are they?

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