Equity and Access: Creating General Education Classrooms Responsive to Potential Giftedness

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Underrepresentation of African American students in gifted programs has alarmed the Office of Civil Rights. Achievement gaps between children from minority and low-income homes and Caucasian students from middle-high income homes is a pressing concern in the United States. The purpose of this study was to examine the implementation of project-based learning as a school-wide initiative to increase levels of achievement and to recognize potential in a population of students that is typically underserved in gifted programs. Through qualitative case study methodology, the researcher reveals the voices of participants as they explore the effects that the reforms had on their beliefs and practices. The instructional changes altered their perspectives of their students and their total classroom environment. Implications for creating environments that actively engage students and aid teachers in identifying potential are discussed.

The latest federal definition of gifted children refers to those children and youth with "the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment" (U.S. Department of Education, 1993, p. 3). The shift in the field from identifying students who display their talents to identifying potential in children has proliferated in numerous instruments or case study procedures to select students who would not be identified through traditional means. Yet, the identification of African Americans for gifted programs has remained lower than other populations, and is the basis for questioning equity and access to equal educational opportunities across the United States (Ford & Harris, 1999). The Office of Civil Rights continues to monitor the numbers of African American children in both special education and gifted programs.

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Because most of the underserved populations are receiving instruction in heterogeneous classrooms, it seems logical that educators of the gifted must expand their research scope to examine ways to recognize and nurture potential in general classroom environments. Previous methods to identify underserved gifted students have inferred the need to enrich their educational environments. Programs such as APOGEE (O'Tuel, 1994) and DISCOVER (Discovering Individual Strengths and Capabilities through Observation While Providing Opportunities for Varied Ethnic Responses; Maker, 1996), involved providing professional development to teachers in order for them to create activities that identify talents of students from diverse populations.

Potential is defined as "that can, but has not yet come into being; possible, latent, unrealized, undeveloped" (Grualnik, 1972, p. 1114). All children must be seen as having potential. Therefore, efforts to identify potential should include all children. The authors of the Parallel Curriculum stated, "Only by ensuring that the maximum number of learners consistently experience the highest quality curriculum, as well as appropriate coaching, mentoring, and support, will these individual students, and society as a whole, benefit from their possibilities" (Tomlinson et al., 2002, p. 4). Therefore, an important area for educators of the gifted to explore is that of instructional reforms for all students. Gifted education is not synonymous with total school reform, but it is definitely tied to the increasing achievement of all students. Only with increased achievement in all students will more children's potential be recognized, developed, and identified for specialized instruction. A relevant question for educators of the gifted is, "How can teachers in all classrooms, including those with predominantly underserved students, create opportunities to recognize, nurture, and develop students' talents and abilities?"

This paper describes the first year of the schoolwide initiative to raise achievement of all students by implementing project-based learning (PBL) in a school that was identified as one of the lowest achieving schools in the district. Project-based learning is more typically found in gifted programs than in classes where students perform below age or grade level. The purpose of the reform initiative was to change the environment for learning to foster the growth of students' potential

and to alter the beliefs of teachers, enabling them to recognize and develop talents in students who are typically overlooked for gifted programs. Research questions guiding the study included: (a) What are the outcomes and issues that arise from implementing the Project Approach (Katz & Chard, 2000) as a schoolwide initiative?, (b) how does the implementation affect the teachers' practices and beliefs about their instructional strategies and their students?, and (c) how does the documentation process influence teachers' views about student abilities and pedagogical practices? As part of a 3-year study, this summary of the first year focuses on the process of implementation and change in teaching and the learning environment. Achievement outcomes of students are reported in another paper summarizing the impact of the 3-year study (Hertzog & Ganguly, 2004).

The Project Approach to Curriculum

The instructional component of this reform effort was the transformation of a content-driven, textbook-centered curriculum to one that was inquiry-based, emergent, and project-oriented. Projects have been articulated as a strong component of gifted and talented programs since the late 1970s (Renzulli, 1977). The school design team (an internal committee) at Pinehaven[1] chose Katz and Chard's Project Approach (2000) as their curricular model. The Project Approach resembles Renzulli's Type III Enrichment, independent or small group investigations. Students follow an inquiry process in three Phases. In Phase I, the teacher develops activities that assess what students already know about the topic being studied. Students articulate their previous experiences by drawing memories or writing about their experiences. In Phase II, students pursue answers to questions posed by individuals or small groups of students. They engage in fieldwork, and collect and analyze their data. In Phase III, students share their findings and new understandings with "real" audiences. Discussion, fieldwork, investigation, representation, and display are features of project work (Katz & Chard).

Inherent in the Project Approach is the child becoming an authentic researcher. According to Moore (2005), "most educational

models for gifted students recognize the need to teach gifted students how to become researchers" (p. 359). The need to give students opportunities to pursue research stems from articulated and identified characteristics of gifted children: interest in topics beyond the level of their age peers, high levels of curiosity, ability to synthesize and analyze information, and ability to work long term and in depth (VanTassel-Baska, 1998). Although curricular models or conceptual frameworks of curricula for the gifted differ, the fact that "curricula for gifted students should promote self-initiated and self-directed learning and growth" (VanTassel-Baska, p. 353) is a withstanding principle across all models in the gifted literature.

Katz would be the first to say that the Project Approach is not gifted education or designed for gifted students only. However, the literature presents a multifaceted relationship between project-based learning and gifted education. Both place an emphasis on intellectually engaging material that challenges students. Both see the role of the teacher as primarily a facilitator of learning. In both, there is an attention to students' interests and learning styles. There are also opportunities for students to exhibit their strengths and talents. Students are introduced to inquiry in various fields of study and are often acting as young investigators in a particular field of study. Teachers assume high expectations for students and provide opportunities to make the learning meaningful. Many well-described features of gifted education are present in project-based learning, making it an instructional vehicle for delivering aspects of pedagogy from gifted education to all students.

Theoretical Framework

The Project Approach falls into the category of emergent curriculum—at the far end of the continuum from the "Prescribed Curriculum." An emergent curriculum "reflects both children's interests and adults' interests and values" (Jones & Nimmo, 1994, p. 101). The Project Approach is an operational example of constructivist theory and the cognitive development model that emphasizes the "processes of cognitive growth" (Feinburg & Mindess, 1994, p.

3). Students construct their own understandings through engaging in learning experiences that are negotiated between the teachers and the students. The teacher plays the most critical role in providing the contexts for intellectual growth and challenge. The cognitive developmental model stresses the interaction and the relationship between the child and the environment. Distinguishing from the cultural transmission view where the teacher's role is to impart information, the teacher's role in the cognitive developmental model is to "present challenges that are appropriately confounding, and to provide them with the opportunity to wrestle with these challenges in active, meaningful ways" (Feinburg & Mindess, p. 3). Curricula for children identified as gifted has been defined as more abstract and ambiguous than what has been determined "good curriculum for all." The authors of the Parallel Curriculum (Tomlinson et al., 2002) describe the ascent of intellectual demand, "the escalating match between the learner and curriculum" (p. 13), to distinguish curricula that is good for all students from what is good for just gifted students. The Project Approach, by its nature of students pursuing answers to their own questions, has principles of differentiation and intellectual demand built into the path of inquiry. Teachers must be trained to guide this inquiry so that the students' gain "enduring knowledge," (Tomlinson et al., p. 9), dispositions, and skills. Using this conceptual framework, the training of all teachers to be good facilitators of inquiry merits research.

A second theoretical backdrop for the nature of this work is related to Critical Race Theory (CRT; DeCuir & Dixson, 2004; Irons, 2002), one that is seldom discussed in the gifted education literature. DeCuir and Dixson argue, "Given the insidious and often subtle way in which race and racism operate, it is imperative that educational researchers explore the role of race when examining the educational experiences of African American students" (p. 26). Advocates of gifted education have been labeled elitist (Sapon-Shevin, 1993) and even worse, implied to be racist because their cause to educate the academically elite is seen as the primary mission of the field. Underidentification of African American students for gifted programs has often been blamed on poor instruments, low teacher expectations, or characteristics of the home environment.

Perry, Steele, and Hilliard (2003) maintain,

> present science, technology, and mental measurement are fundamentally incapable of measuring human capacity. Therefore, Black and White differences in that capacity cannot be measured. Intelligence tests are nothing more than a particular kind of "achievement test" that favors students who have a privileged opportunity to be exposed to those things being measured on the tests. (p. 135)

Views of the teachers or people who comprise the school culture must be explored to eliminate the possibility that the teachers' beliefs or prejudices are contributing to the underachievement of specific populations of students. Delpit (1995) cites differences in discourse styles as a major factor influencing discrepancies in achievement among subgroups of children from different ethnic and economic backgrounds. Critical Race Theory in its most abbreviated summary explores the historical suppression of Blacks, the effects of race and racism, issues of power, and, in particular, how African Americans have been denied avenues for self-empowerment. Delpit described how issues of power are enacted in classrooms and linked the culture of power to middle and upper classes, "Children from middle-class homes tend to do better in school than those from non-middle class homes because the culture of the school is based on the culture of the upper and middle classes—of those in power" (p. 25).

Achievement gaps between poor or African American students and their White, middle class counterparts continue to dominate educational discourse. DeCuir and Dixson (2004) suggest that using a CRT perspective, one may examine how,

> . . . the curriculum, and specifically, access to a high quality, rigorous curriculum, has been almost exclusively enjoyed by White students. Tracking, honors, and/or gifted programs and advanced placement courses are but the myriad ways that schools have essentially been re-segregated. The formal ways that selection and admission into these programs are conducted guarantee that students of color have virtually no access to a high-quality curriculum or certainly one that will prepare them for college attendance . . . (p. 28)

The school district studied has a court mandate (Consent Decree) to improve and equalize the quality of education for African American students. Improving the quality of education at Pinehaven is of paramount importance to the district. Educators in the field of gifted education who have led reforms for problem-based learning, higher level thinking, and authentic opportunities for identified students to share talents now have the opportunity, if not the duty, to focus on the word *potential* and illuminate methods for teachers to address the strengths and talents of the diverse student body that they teach. These methods seek to empower students and equalize educational opportunities.

Literature Review

Project-based learning has found renewed interest in education today because of its potential for developing thinking and cooperative learning skills (Kraft, 2000). Many efforts of curriculum reform have embraced similar strategies.

The Accelerated Schools Project (National Center for Accelerated Schools PLUS, 2005) is one of the largest examples of school reform that includes an inquiry-based curricular approach. The Accelerated Schools are often those with the highest number of at-risk students, minority students, or students coming from poverty. Accelerated Schools is a school reform movement intended

> to transform whole school communities—especially those set apart by high poverty, low academic performance and remediation—to enriched environments characterized by accelerated instruction and gifted and talented teaching strategies that have been traditionally reserved for only the top 5% of students. (National Center for Accelerated Schools PLUS, General information, para. 1)

The Accelerated Schools Centers have documented gains in academic achievement, decreases in discipline referrals and dropout rates, and overall improvement in school climate.

Research has reported important gains from using a Project Approach with children from low-income homes (Kohn, 1999).

"Kids who are variously called 'at risk,' 'low-achievers,' or 'slow learners' usually suffer most from proficiency-driven curriculum because they are consigned indefinitely to dull and repetitive skills instruction that does not enable them to grasp underlying concepts" (Kohn, p. 55). Kohn maintains, "Skill-based instruction, the type to which most children of color are subjected, tends to foster low-level uniformity and subvert academic potential" (p. 10). The Project Approach engages children in thinking and problem solving.

A 4-year study of the Project Approach at Valeska Hinton Early Childhood Center (with a predominately at-risk student population) demonstrated that students "made notable gains on a standardized test and performed as well as or better than their counterparts at another school" (Brown, 1999, p. A21) who were exposed to a traditional curriculum. The same study demonstrated that the longer the students were in the program at Valeska Hinton, the better they performed.

Although research about the Project Approach has generally resulted in positive findings, Stites (1998) pointed out difficulties with the previous research. He noted that such research is typically implemented in the context of comprehensive educational reforms, making it difficult to isolate the effects of project-based learning on student learning. He also noted that the Project Approach is implemented differently in different contexts, making comparisons difficult across cases. Moreover, the Project Approach entails a shift in learning objectives, stressing higher order thinking skills and authentic performance-based assessments. Standardized achievement tests, consequently, may not be the best measure of the effects of project-based learning.

This qualitative case study addressed the limitations noted by Stites (1998). In-depth data from interviews, observations, and prolonged engagement in the field site revealed the relationships and insights between implementation of the Project Approach and changes in teacher practices and student behaviors. Observations verified components and the degree of implementation. Detailed documentation facilitated assessing the quality and growth of student learning.

Documentation and Assessment

Traditional methods of assessing learning have often concealed the talents of bilingual students, students with disabilities, and students from low-income families. Therefore, as well as the intervention to facilitate project-based learning, teachers were also encouraged to document students' participation in project activities. By documenting students' learning experiences, teachers were more directly involved in the process of examining and understanding students' strengths and talents. This case study examined the role that documentation played in highlighting students' strengths and changing teacher beliefs and practices, as well as the impact it has had on the overall success of the reform initiative.

Documentation plays a significant role in learning in the preprimary schools in the city of Reggio Emilia in Northern Italy. According to Edwards, Gandini, and Forman (1998), "documentation refers to any activity that renders a performance record with sufficient detail to help others understand the behavior recorded. . . . The intent of documentation is to explain, not merely to display" (p. 241). Documentation serves as evidence of children's thinking. By writing and recording the students' ideas, misconceptions become visible. The teachers in Reggio Emilia document students' experiences to gain a better understanding of the children. They reflect on the documentation to plan learning contexts for the next day. In effect, they study individual children and group contexts to expand students' learning opportunities. They tailor these learning contexts for individuals and small groups of children, thereby differentiating instruction (although they do not use that term). Documenting misconceptions, as well as ideas that show mastery, helps teachers make decisions about who needs more experiences to gain deeper understandings. In the United States, early childhood educators are using the tools of documentation for assessment purposes. According to Helm, Beneke, and Steinheimer (1998), documentation provides the evidence needed for reliably assessing children's progress and "for meeting accountability requirements, for monitoring individual student's growth and development, and for program evaluation" (p. 15).

In this study, there were two levels of documentation. The teachers documented the phases of the project work and kept samples of individual student's artifacts throughout the project. The second level of documentation was integrated into the research process. As the researcher, I documented the teachers' and students' participation in Project Approach activities such as brainstorming, webbing, field studies, and class discussions. I shared all of my documentation of project activities with the teachers, both to help them in their own attempts to capture students' experiences and to facilitate their own reflection about their instructional practices.

Methods

This is an intrinsic qualitative case study that examines the implementation of a curricular reform initiative in a particular school setting. According to Stake's (1994) definition of intrinsic case study, "It is not undertaken primarily because the case represents other cases or because it illustrates a particular trait or problem, but because, in all its particularity and ordinariness, this case itself is of interest" (p. 237). This school holds particular interest because of its record of low achievement and its history in a racially charged lawsuit against the district. The school and its stakeholders, including the faculty, staff, students, and others who work in some fashion with the school or its students, bind the case.

Setting

Pinehaven resides in a midwestern city where the largest employer is a land-grant state university. This was the second year in the newly constructed school, built to replace the oldest in the district. The school was K–5 (approximately 350 students, with a capacity for 450), and had the history from the former building of being the lowest achieving school in the district. Approximately 90% of the students received free or reduced lunch. Seventy-three percent of the student body was African American.

The district was under an Office of Civil Rights out-of-court settlement to offer "Schools of Choice" for elementary students for its unfair treatment of African American children as demonstrated by the overrepresentation of African American children in special education classes, its underrepresentation of African American children in gifted classes, its higher proportion of African American children than White children being disciplined, and other areas of inequities as mentioned by the plaintiffs.

The out-of-court settlement was termed a "consent decree" whereby both parties agreed to specific actions. One action was to develop a Schools of Choice program. The Schools of Choice program was designed to rectify the unequal demographics of the city and the overrepresentation of African American students in certain schools. In order to make all of the schools equally attractive to parents of all races, schools were requested to develop a theme. Under the program, parents ranked their top three choices of attendance centers for their children. A computer generated the placement, taking into consideration race as the primary sorting factor. This particular school was underselected, meaning most parents in the district did not choose Pinehaven as their first choice.

Each school had an internal committee (school design team) that explored theme options for the Schools of Choice program. Wanting to attract more White and middle to upper income families to the school, the design team requested that Pinehaven focus on science and technology. Because another school had already chosen that theme, the school design team offered the Montessori model as a suggestion. The school board recognized that it would be too costly to train all of the Pinehaven teachers in the Montessori model. One member of the school design team had participated in a pilot study to implement the Project Approach in her classroom (Hertzog, 2001); she shared her enthusiasm for the approach with the team and, finally, after a visit to a school where the Project Approach was implemented, the team recommended project-based learning as their School of Choice theme to the administration. Thus, project-based learning was chosen, not only to raise achievement levels, but to also make Pinehaven a more desirable choice among White and middle to upper income families in the district.

The year prior to this study was a year of transition for the school. To respond to the dire need to improve student achievement, the school received a Comprehensive School Reform Demonstration Grant from the federal government. The grant stipulated that the school had to develop outside partnerships. Initially, they chose to collaborate with the Ball Foundation. After one year, the administrative structure of the Foundation changed, and they left the partnership. The principal contacted the Office of Professional Development and Public Service (OPDPS) at the university to assist her in continuing the reform efforts.

During the first year of this study, the district adopted other initiatives including balanced literacy, which acknowledges that reading, writing and oral language develop concurrently and interrelatedly in young children ("Balanced Literacy," n.d.), and a behavior management system called Positive Behavioral Interventions Supports (PBIS; Carr et al., 2002). There were three design teams and a leadership team of teachers, administrators, and community members to oversee the three initiatives: project-based learning, PBIS, and balanced literacy. During the course of the year, there was great concern whether the school design teams (PBIS, balanced literacy, and PBL) could work together to make the schoolwide reforms successful.

Other university faculty were involved in the improvement initiatives. One in particular taught a university course on social justice at the school site; several of the staff members enrolled. She met with upper-grade-level teams to facilitate project-based learning, and I met with the lower level teams. Each week, grade levels met to discuss either PBL, balanced literacy, or PBIS.

Researcher's Role

I viewed this research as collaborative. I was an active participant in the reform initiative, and served the role of a facilitator and a collaborator to document the children's learning experiences. I provided both formal and informal professional development to participating teachers. I encouraged them to incorporate the Project Approach into their instructional practices. I presented myself as a facilitator

and not as an evaluator of the initiative or of their teaching. In that vein, I present the findings of their first year of implementation as the story of their experiences and an examination and discussion of the reform efforts.

Prior to this study, I conducted a pilot study with two first-grade teachers at Pinehaven, helping them to implement the Project Approach in their classrooms (Hertzog, 2001). One of the participating teachers was on the school design team that selected a theme for the Schools of Choice program. Toward the end of the pilot study, the school design team chose this approach to be a schoolwide initiative. The school design team visited University Primary School and then met with me for an hour as I explained the curricular approach. I also provided one day of in-service training and invited a teacher with experience using the Project Approach to present the second day of training before school began. Over the course of this two-day training, we engaged teachers in activities that students would pursue throughout the phases of a project. Specifically, after giving an overview of the approach with multiple examples of young children pursuing inquiry activities, teachers themselves worked in small groups to brainstorm a topic web, recall memories or experiences about the topic, survey each other to compare and discuss similarities and differences in experiences, and create representations of their data. On the second day of training, teachers met with their grade-level teams to plan their initial project investigation. The presenter also gave the teachers a step-by-step calendar (now available at http://www.ed.uiuc.edu/ups/curriculum2003/food/genactivities.html) articulating activities that guide students through the three phases of the Project Approach.

Throughout the year, I presented several short in-service sessions, each focusing on one aspect of the implementation process. For example, we talked about documentation one day and the ways to engage students in data collection and critical thinking in another session. I also facilitated kindergarten project-based learning grade-level meetings. At grade-level meetings, the teachers in the same grade tried to coordinate topics, field trips, and resources. I elicited from the staff ways they needed help. Additional involvement evolved throughout the year. I demonstrated aspects of the Project

Approach in classrooms where teachers asked for assistance. I also documented learning activities with digital photographs, created display boards, and met with teachers in grade-level meetings as a participant and/or advisor. The dual role of facilitator and researcher provided an ongoing dialogue with participants and gave me access to their classrooms and their teaching practices.

As an "insider," I had access to staff meetings and informal chats between participants. Teachers themselves became action researchers and collected their own data to share with me. I know I influenced actions and instruction. Sometimes teachers changed their lessons when they saw me observing. But, I was always a "visitor" and a "guest" in the school. I only had access to classrooms of teachers who gave permission to observe and in-school time for ongoing professional development when the administrator scheduled it. As a participant-observer, I describe their experiences from my own perspectives, as well as those that were shared with me.

Participants

Out of a staff of 15 teachers, including specialists, one music and two kindergarten teachers gave permission for me to observe and document the implementation of the Project Approach in their classrooms for the 2000–2001 academic year. During the first semester, I visited only the music teacher's room because the kindergarten teachers had not yet implemented a project investigation. In the second semester, I visited all three classrooms one to three times per week for approximately ½–1 hour each time, depending upon the class activities. Other teachers and auxiliary staff in the school participated by completing questionnaires and attending project-based learning meetings throughout the year. Several teachers requested help with documentation as the second semester progressed.

The Teachers: Alicia, Linda, and Janet. The number of African American teachers at this school ($n = 6$) was higher than at the other elementary schools in the district, and both of the kindergarten teachers that I worked closely with were African American. Alicia was a young second-year teacher who had been moved from first

grade to kindergarten. She openly admitted that she was still getting used to the kindergarten curriculum and that she was receiving guidance from the other kindergarten teachers as to what and how to teach. Her closest colleague was the more experienced, middle-aged teacher Linda, who had just moved to the kindergarten level after having taught first grade for several years. Linda had a long history of teaching at the school and moved with the current staff from the old location to the new one. The music teacher, Janet, was on the design team that chose the Project Approach and was currently enrolled as a doctoral student at the university. She was near retirement and said she wanted to move to Florida to be with her grandchild, even though she intended to teach in Florida after she retired.

Experience With the Project Approach. A few teachers had prior experience with the Project Approach. One first-grade teacher had participated in the pilot study (Hertzog, 2001) and had been to a four-day Project Approach workshop in the summer of 1999. Two staff members who were new to the school had prior experience doing projects. One, a first-grade teacher, was in her first year of teaching and had been a teaching assistant to the other, who was now employed as a fourth grade teacher. For most of the other teachers, the Project Approach was a new way of teaching and thinking about learning.

This was the first year for the school to have a balanced calendar (school began in late July). Therefore, time for in-service training on the Project Approach was both hurried and limited. About half of the staff participated in at least one of the two-day workshops presented before the start of school. Other in-service training sessions were either at faculty meetings or during grade-level meetings. The long-term nature of this research gave participants many opportunities to share their experiences, their obstacles, and their achievements throughout the duration of the study.

Data Sources

Data sources included interviews with teachers and administrators, observations of students engaged in project investigations in three classrooms, field notes from whole-staff meetings, project-based

learning meetings and workshops, and other public forums where the initiatives were discussed (e.g., school board meetings). I also reviewed documents such as meeting agendas, reports from administrators, and the evaluation report of the school reform efforts. I took digital photographs and printed them for the classroom teachers regularly. I created display boards to share with their students, parents, and other faculty and staff at the school. The digital photographs and the documentation display boards were a significant component of the data.

Analysis

In this case study, the purpose of analyzing the qualitative data was to come to greater understandings about the process of change. Therefore, the analysis of the first year's data focused on the way the teachers implemented or struggled to carry out the required reform effort. I made no attempt to evaluate the impact on student achievement at the end of only the first year because the achievement tests were taken prior to full implementation of the reform effort.

Each year, the qualitative data was plentiful—including hundreds of pages of typed field notes, transcripts, summaries of meetings, and memos of formal and informal meetings and conversations. Analysis was ongoing as I reviewed field notes from one visit or interview before going to the next. Because I was interested in the process of implementation and not only the outcomes, some of the coding schemes were decided upon ahead of time based on my research questions. For example, I examined and coded the data for changes in practice, changes in beliefs, new ideas, suggestions, perceived problems, possible solutions, worries and concerns, and future ideas. The questionnaire given to all of the teachers at the end of the year reflected preconceived coding categories that I used in conjunction with field notes of observations and transcripts of interviews for triangulation (see Appendix).

In qualitative research, it is important to be responsive to data as it emerges. I created other coding categories such as barriers (real and/or perceived), students' level of engagement, basic skills, transfer of knowledge, integrated content activities, teacher frustrations,

and positive and unintended outcomes as they became dominant themes throughout the data. Behavior management systems heavily influenced the implementation of the intervention, and I began observing more closely how these management systems worked, what structures were in place to promote or inhibit some of the systems and techniques used by the teachers, and how they impacted the children. Thus, several new codes emerged related to behavior management and discipline systems. Some codes had subtopics and were broken down into smaller chunks. For example, I examined content in terms of knowledge, skills, and dispositions, as well as in relation to disciplines of study, required district curricula, and state standards. Photographs and documentation boards were also used to analyze content, relationship of projects to learning standards, level of engagement, dispositions, individual strengths and learning styles, and instructional value. Many methods of data displays were employed (Huberman & Miles, 1994) to analyze themes across classrooms and contexts of implementation.

Trustworthiness

Lincoln and Guba (1985) discuss ways for qualitative researchers to enhance the trustworthiness of their study. They suggest three activities that produce credible findings: "prolonged engagement, persistent observation, and triangulation" (p. 301). All three of these were present in this study. Prolonged engagement as defined by Lincoln and Guba "is the investment of sufficient time to achieve certain purposes: learning the 'culture,' testing for misinformation introduced either of the self or of the respondents, and building trust" (p. 301). The study was a 3-year endeavor that enabled me to build complex (both personal and professional) relationships with the staff. The cooperating teachers became both friends and colleagues, allowing me even more access and insight into their own thinking about their teaching.

According to Lincoln and Guba (1985), the purpose of persistent observation "is to identify those characteristics and elements in the situation that are most relevant to the problem or issue being pursued and focusing on them in detail" (p. 304). They maintained,

"If prolonged engagement provides scope, persistent observation provides depth" (p. 304). Observations were systematically planned in participating teachers' classrooms throughout the duration of the study. Although every instance of implementation and project work could not be observed, I had the opportunity to see several teachers implement multiple projects over the course of 3 years and that afforded me the lenses to see changes in their strategies, methods, and management processes.

Triangulation of data sources was a key component that added credibility to the interpretations of this study. Each year, as previously stated, data sources included observations, interviews, digital photography, displays and documents that included lesson plans, district curriculum, memorandums, staff meeting agendas, and summaries of meetings. It follows that "the more sources tapped for understanding, the more believable the findings" (Glasne & Peshkin, 1992, p. 24). Interviews, in particular, enlightened and gave voice to the changes that were taking place in teachers' thinking processes over time.

At the end of each year, a summary report was written and shared with the administrators and teachers of the building. The end of each year was a reflecting point to gather member checks. Member checks, "whereby data, analytic categories, interpretations, and conclusions are tested with members of those stake holding groups from whom the data were originally collected, is the most crucial technique for establishing credibility" (Lincoln & Guba, 1985, p. 314). Member checks occurred continuously throughout the study, but most formally at the end of each year and the beginning of the second and third year when I had the opportunity to share the results of the end-of-year surveys with the staff and get their feedback and comments. The end-of-year summaries had prevailing themes and were the basis for individual papers (submitted for publication) that became products of this research.

To increase trustworthiness of the study, interview data were reviewed with those interviewed, and drafts of this paper were distributed to key participants for their input. In Year 2, two of the kindergarten teachers copresented with me at conferences to share their first-year experiences implementing the Project Approach and to give their own perspectives of the reform initiatives.

Findings

Transformations and Reflections

Having lunch at the end of the year with the kindergarten teachers and aides, Alicia said to me, "Next year, I'm not doing circle man!" This summarized her transformation in thinking about her teaching. She revealed that the students knew a lot more than she thought, and she did not want to spend time teaching things they already knew. She realized that most of her kindergarten students already knew shapes and colors. She said,

> I cannot even think of letters, shapes, or colors in the same manner. I also won't spend a week on a letter of the alphabet. So many of my students already know their letters and numbers and shapes. I'll teach those things, but they will be done differently.

She presented her transformation at a national conference and discussed these changes in her thinking:

> Circle man, as I said, was cute, but it is teacher made. I made all of the circles, and it's already made; and the kids typically just kind of looked at it and tried to reproduce it. This was a fine project, but this is not the way that I want to teach children about circles. I would rather see them do their own creations, so I decided to change that.

After a slow start, not just Alicia, but most teachers gradually came to appreciate the benefit of using the Project Approach for their students. End-of-year questionnaires revealed their changes in practices and thinking. One teacher wrote on the questionnaire, "I have progressed on the path to becoming a facilitator. I now allow my students to express their learning 'needs' and I guide their journey." Another teacher wrote, "It has changed my thinking about science and exploring. I don't feel that I have to use worksheets all of the time."

The teachers who responded to the questionnaire saw beneficial outcomes for the students. Some of their comments verbatim included,

- I saw my children engaged. My children were predicting, thinking, and investigating. Even the children that have behavior problems were engaged.
- The children became familiar with these ways of thinking, talking, & recording.
- Enthusiasm for learning. During projects my attendance for certain kids improved.
- Greater understanding of concepts because of the integration of theme into curriculum.
- Engagement increases. (See the Appendix for a list of all responses.)

Alicia said, "Children are engaged, they're focused, and even my more challenging students are participating in the activities, and I think that it's because it's mostly hands-on stuff."

Being interviewed for an evaluation report, one teacher commented,

> I just see it [PBL] as a wonderful thing for [Pinehaven]. I have a video documentation that [shows that] not only are our children engaged, but it's resonating with their ways of knowing. Every time I look at my videos, every time I work with my class, I see a wonderful new type of viewing. It's a children's lens. I see children who could not learn this specific type of material just be very comfortable with it. (Greene & Lee, 2001, p. 24)

The music teacher, Janet, was particularly enthusiastic about the Project Approach. As the year progressed, I noticed a distinct shift in her thinking from wondering how music can fit into projects at the various grade levels to using the approach to teach her own content. She wrote the following electronic mail message:

> Just wanted to let you know that there are now pbl projects active in EVERY music class at [Pinehaven]. Some of the subjects include: Instruments—Can you tell what an instrument will look like from listening to its sound?—Third grade; musical composition—What do you need for this and how do "people" compose?—fifth grade; Who writes

> the songs? (composers)—Kindergarten; African or African/American? How do we know?—Second Grade [fourth grade is completing an assembly performance tomorrow but I think they may explore "Where in the World did THAT song come from?"—music around the world].
>
> The ones in progress are going wonderfully different directions—all involving the state mandated music goals!! Right now I expect the third grade may evolve into an instrument-making project. Could produce some fantastic documentation.

In April of 2001, the music teacher proposed her own study on her changing teaching practices as her doctoral early research project. She wrote,

> The purpose of this study is to document the journey of an elementary general music practice from a traditional music education methodology to a program based on the Project Approach as a way to enable the students to more fully incorporate their own knowledge base.

Toward the end of the year, she began to videotape her project-based learning lessons and was thoroughly excited about the high engagement level of the students.

The principal told me in an interview that project-based learning had changed the climate of the school. She said there was more parent participation, more teacher collaboration, and a common goal for student success. Most importantly, she said that all teachers have higher expectations for their students.

The actual physical environment of the classes changed with the introduction of topic webs, experience stories, and representations of students' ideas in narratives or three-dimensional structures. Differences in reading abilities have been attributed to differences in literacy environments (Duke, 2000). The Project Approach changed the literacy environments in the early childhood classrooms with more and different types of books brought into the classroom, more time in which print was being used in the classroom, and more opportunities for students to see words in context (e.g., charts of students' ideas, documentation of students' ideas on the walls, etc.).

Hot and Cold—An Example of a Project Investigation at the Kindergarten Level. To detail how the learning environment changed, several examples can be found with a discussion of the project investigation that kindergarten teachers did entitled, "Hot and Cold." This was a required science topic by the district's curriculum mandates. The district provided science tubs and gave teachers 13 activities for students to learn about temperature:

- Hot–Tepid–Cold
- Hot–Tepid–Cold Bulletin Board
- Pictures of Hot–Tepid–Cold
- How Does the Water Feel?
- Meet the Thermometer
- Messing Around With Thermometers
- Thermometers in Hot Water
- Thermometers in Cold Water
- Making the Thermometer
- What Will the Temperature Be?
- What Happens to Water?
- The Great Jell-O Experiment
- Award Day

Instead of following the activities in the "tub," the teachers began their project investigations with students recalling memories and experiences of hot and cold things. Students drew pictures of hot and cold things. They made a Venn diagram of what they thought was hot and what they thought was cold (with some things like water in the middle). On one day, I demonstrated for the teacher how to have children respond to a questionnaire. I had the students in the class collect data on who ate a hot or cold breakfast that morning. During center time, they worked with me to graph their data on a transparency. They shared it with the rest of the class during the whole-group meeting. The teacher was amazed that the children could "read" the graph when they had never been taught how to graph before that morning. Phase 1 of the project ended with students listing questions they had about hot and cold. Below are a few of the questions they raised about hot:

- How hot is the lava that comes out of the volcano?
- How hot can we eat our soup or pizza?
- How do they make fake snow?
- How warm does it need to be to go outside without your coat?
- How warm can it be for you to go outside without being too hot?
- What machines make things hot and what machines make things cold?
- How do hot and cold make warm?
- Why is the sun so hot?
- How hot is water when it comes out of the sink to drink?

The front of the room was covered with their lists of questions, their Venn diagram, and their experiences of hot and cold things. This was in sharp contrast to the basic word wall that was the only display of literacy prior to doing project investigations.

Many of the students' questions led to experiments with thermometers. The students placed thermometers all over the school building, including places in their room, the hallway, the cafeteria, and the principal's office. Specific children were responsible for checking the temperature on the thermometers at the same time every morning. They excitedly recorded their data and could not wait to share it with the rest of the class. Students made representations of thermometers and carefully copied numbers that they otherwise would not be using in kindergarten. The teacher made graphs of the temperature in the various locations over time. Discussions about the comparisons were lively, and students were curious about the differences, thereby engaging them in advanced math problem solving. Students also experimented with the tap water in their sinks. They took paper thermometers to lunch and measured the temperature in their soup and on their pizza. They interviewed experts about lava and fake snow. They did more than the 13 activities suggested in the science tub—and demonstrated more interest and engagement than previously exhibited in other science activities.

At the end of the project, they demonstrated gains in knowledge about temperature by making accurate predictions about the weather, constructing collages of hot and cold things, and sharing

displays of their graphing data. Throughout the project, the teacher was amazed with their level of interest and engagement in learning. The students ended up leaving the thermometers all around the school for the remainder of the year.

Implementation Barriers

These transformations did not come easily or without some frustrations along the way. Throughout the year, teachers mentioned barriers that impeded their implementation. Their experiences resonate with many difficulties experienced in reform efforts.

Time. An ongoing issue in implementation was how to integrate project-based learning into the curricular units that were required by the school district. A common concern was that the teachers had "too much to cover" in a short amount of time and could not devote enough time to making the project investigations truly in-depth studies. This realization that in-depth projects take time signified an understanding of the Project Approach. They realized that it does take more time to facilitate students' pursuit of questions than it does to present them the material in a unit.

At the beginning of the year, the principal introduced the large topic of community and suggested that each grade level take one aspect of the community to investigate. The kindergartners chose to study the community park across the street from the school. One first-grade class wanted to investigate the new playground at the school. Second graders decided to study the "helpers" in the community, and the fifth graders wanted to study "famous people" in the community. However, the teachers at the higher grade levels had difficulty beginning their projects in the fall semester. Over the course of the year, with guidance from facilitators at grade-level meetings, teachers moved from projects that were in addition to the curriculum to projects that related to their required curriculum.

At one kindergarten grade-level meeting, the teacher asked, "How would I do the 5 senses using the Project Approach?" As the facilitator, I suggested that she should do a topic web on the five senses. The teachers began to see how all topics could start with

Table 1
The Integration of Project Investigations Into the Required Curriculum

Grade Level	Projects
Kindergarten	Park near the school Hot and cold Sand and water Five senses
First grade	Animal habitats Seeds
Second grade	People that make a difference Structures
Third grade	Rocks
Fourth grade	Local African Americans that made a difference
Fifth grade	The American Revolution

webs, memory drawings, and data collection. Table 1 lists the topics of project investigations that fit neatly into their required subjects. Even though they related projects to their required "units," the common complaint among all staff was that they just had too much to cover and could not devote enough time to project work.

Compatibility. Another issue related to time was that the teachers did not know how to comply with district mandates for the balanced literacy program with the school mandate to implement project investigations. The literacy coaches from the district office were not involved in the schoolwide initiatives. Many teachers talked about the requirement for guided reading time and centers that were entirely literacy based. One teacher said she thought she would get in trouble if she were caught doing project work during the literacy time block. One of the literacy coaches questioned the teacher about her students doing interviews during literacy time. In November of 2000, the project-based learning team met to discuss the status and progress of the implementation. The team set goals, with the highest priority being to meet with the literacy

design team. To my knowledge, the two teams never met together to iron out these issues.

Another barrier to implementation was an administrative imposition of a discipline program that required teachers to monitor their student's behavior every 15 minutes. This distracted teachers and teaching assistants from engagement in the project activities. Teachers struggled to juggle both mandates: monitoring behaviors and project-based learning. It was particularly problematic because the person that was in charge of the new discipline policies was also hired by the OPDPS through the school improvement grant. Teachers saw one group of university faculty members assisting them with project-based learning, and another person from the university leading policies that directly conflicted with the implementation of project-based learning. When I observed the kindergarten rooms, their assistants were constantly monitoring behavior by tallying marks on the chart. They were too preoccupied with the tally sheets to work with small groups of students. The classroom teachers without assistants were also overwhelmed with the task of continually writing checks or minuses on every child every 15 minutes.

Teachers had difficulty implementing the monitoring system and adhering to a districtwide system where students received stars for the student-of-the-month award that is featured at a monthly assembly program. At staff meetings, teachers shared how they were giving their stars, and how they used the monitoring system to distribute stars. For example, if the child had all pluses for the day in the monitoring system, the teacher would give out a star. Another teacher said if students had almost all pluses for the day on the monitoring sheets, she would give out stars. Teachers used the systems differently and verbally questioned the value of such systems. In classrooms, I would frequently see teachers tell the students to behave or they would have to give them minuses instead of pluses on the monitoring sheet. Quickly, the monitoring sheet became a reward and punishment sheet; they were not reflecting what the children were actually doing for the 15-minute time blocks. Children were negotiating their future behaviors to what the teachers would write on the monitoring sheets. If students had

too many minuses, the teachers wrote discipline referrals for the principal.

The emphasis on stars, student-of-the-month awards, and other external reward systems directly conflicted with the philosophical principles behind project-based learning. These principles reflect autonomy of the student learner and a respect for students having some control over their own learning. Environments that engage students in pursuing their own questions and empowering them to take responsibility for their own learning are not controlled through authoritative teacher rewards (or punishment) systems. Instead, the environmental climate for project work to be successful has to be one in which students feel empowered to make decisions about their own learning and are intrinsically motivated to pursue the answers to their questions. The teacher's role becomes that of a facilitator and therefore much less authoritative.

From a practical standpoint, the perception that teachers had to give out stars or stickers every time they saw positive behavior interrupted good teaching of the Project Approach. Teachers interrupted their own discussions to give out positive reinforcements. Also, when they stopped the learning to recognize a few good behaviors, it caused more disruption among those who did not get recognized because most students were engaged during those time periods. Students could not understand why some were and some were not recognized with the tangible rewards.

Documentation and Assessment

The digital documentation made a significant impact on the teacher's "buy-in" to the approach. The pictures communicated messages that could not be seen in standard measures of evaluation. They illuminated students' engagement in learning and capacity to learn.

Alicia and Linda were amazed at the level of engagement evidenced in the photographs of specific students whom they thought were more often causing trouble than learning. Seeing their level of engagement changed their attitudes about the type of learning activities that these children needed. They both acknowledged that they

recognized potential in children who they would not otherwise have expected.

At a cross-grade-level meeting (K–3), two teachers commented on the digital pictures capturing the moments of children's excitement and serious investigation. They said that the opportunity to see their students engaged in project investigations had the most impact on their teaching practices. I created one documentation board of Alicia's kindergarten class in the "Hot and Cold" project and related the activities shown in the pictures to the state learning goals and standards. This example of documentation helped teachers gain confidence in the approach to cover required curriculum. They were worried that if they spent time doing project work, they would not be able to cover the state learning standards.

The documentation boards also provided opportunities for teachers to share with each other at grade-level or cross-grade-level meetings what they were doing in their classrooms. The first-grade teacher who routinely put up displays outside her classroom said that no one ever came far enough down the hall to see them. I took pictures of her displays and put them on boards for the rest of the faculty to see. The boards were portable and served many purposes. When it was time for enrollment for the next school year, the music and the kindergarten teachers displayed their documentation boards in the cafeteria for prospective parents.

Students also became fascinated with the documentation of the project work. They frequently requested that I take their pictures. Students in the second-grade class who were building their own structures wanted me to take a picture of them standing with their original construction. They knew that when I was in the classroom, I would only take pictures if they were engaged, so they were totally engrossed throughout my visit, giving teachers the opportunity to see what the students could do when they were motivated to be engaged.

Third-grade teachers documented their field trip to the rock quarry and used the digital photographs to create a class book of their memories. Teachers requested the digital camera from the librarian frequently and requested that I come into their classrooms to document what they were doing. The demand to document their

work was greater than I could fill, and, through the OPDPS, another person was hired on a part-time basis to document the project work at the school.

The teachers associated project-based learning with documentation and began to distinguish between what would be "good" to document and what was not worth taking pictures. The more documentation that they wanted to do signified more engaged learning in their classrooms.

Still Missing

A major component of the Project Approach that I did not see was the division of the topic into small study groups. In Phase II, students generally pursue questions that relate to a subtopic of the major topic. In most classes that I observed, the teacher guided the students in one large group toward answering the research questions that the teachers and students selected. This lack of small-group work lessened the authenticity of sharing information back to the whole class, and probably reduced the amount of conversations and discussions that students could have with each other to discuss their individual or small-group findings. Instead, most of the classes experienced the investigative process together. All students in the second grade built structures. All students in the first grade planted seeds and recorded the progress of their seedlings. All of the students made comparison charts among the seeds and so forth.

I questioned teachers about not allowing students to work in subgroups related to the chosen topic. They were mainly concerned about the behavior of the students if they did not do everything together. They wondered how they could keep one group of students busy if they were working with another group. They told me that they tried to keep the other students calm and quiet by giving them worksheets, but the worksheets did not keep them any quieter. Thus, they concluded that they could not divide the class into groups.

The teachers were willing to have small groups if I facilitated them or if there was another adult in the room. Working in small groups is an important aspect of project-based learning and an essen-

tial strategy for differentiating instruction to challenge all learners. The conditions under which teachers feel comfortable with small-group instruction still need to be explored.

Summary of Findings

It was interesting to note that in the evaluation of the school improvement initiatives, the evaluator negatively summarized improvement efforts, "And so the activities of school improvement efforts have been experienced as a lot of 'programs developed around us,' as multiple, disconnected external demands that have eroded staff time and energy and abraded intra-school relationships and commitments" (Greene & Lee, 2001, iii). While it is true that the implementation was not easy, and there were several different initiatives going on at once, most of the teachers felt positively about project-based learning at the end of its first year of implementation.

Discussion

Student Engagement and Teacher Perceptions

Fullan (1991) reminds us, "Real change involves changes in conceptions and role behavior, which is why it is so difficult to achieve" (p. 38). The first year at Pinehaven with the Project Approach brought about major changes in teachers' attitudes and in their practices. The findings, though not generalizable across settings, may shed light on some ways that lead to real change in teachers and educational environments.

As with most educational reforms or initiatives, there was not sufficient time or training for all teachers to "jump on board." But, several teachers began to see the benefits of using the Project Approach, especially after the first semester. They began viewing their students differently and not only wanted to capture their interest and engagement on film, they wanted to show that interest and engagement to others. Teachers changed their views of their students

from a deficit model to a model of talent potential. They began to have higher expectations for all of their students. M. Foster (personal communication, April 11, 2001) said, "Instead of thinking people into new ways of acting, we have to acting people into new ways of thinking." Jumping into the project-based learning actively engaged teachers in new ways of thinking about their students. Foster (2001) expressed the importance of teaching teachers how to observe children to better help children make the connections between their lives and school. With documentation, teachers saw high levels of engagement during project-based learning activities. They noticed students' ability to focus on learning when their experiences were meaningful and connected to their home lives. In short, the students "acted more gifted" by taking on some of the characteristics we tend to use to identify children for gifted programs. These include showing curiosity by asking questions, staying focused and engaged for long periods of time, learning new things rapidly, problem solving creatively, and becoming self-motivated to learn more and go in more depth with a topic.

This recognition of students' strengths can be seen with two specific examples. The first one occurred at an all-school faculty meeting. One fifth-grade teacher was so impressed with the depth of thinking in her students' questions about the American Revolution that she distributed copies of the questions for all to read. Below are just some of the questions the students generated:

- What weapons do you think the sides used?
- What would America be like if we lost?
- What would you do if you were there?
- If we lost, do you think the British would kill us and why?
- Why did they fight for freedom?
- How do you feel about the war?
- Were Black people in the war?
- Did women fight in the war?
- Did war affect life?
- If you were alive at the time, would you have fought?
- If we lost, would we have become slaves of the British?

Instead of the typical coverage of the American Revolution (memorization of people, events, and places), she said her students were going to study in depth about what life was like at that time. She said some of her students were interested in schools, clothing, weapons, and the lives of women and Black people in particular. In addition to the high level of thinking that was demonstrated by some of the questions, it is also obvious that students posed questions that connected content to their own lives.

The second example of teachers noticing students' focus and engagement can be seen in the field note data of a teachers' cross-grade-level meeting (K–2) toward the end of the year in May. As the teachers gathered for the meeting, they began sharing their experiences implementing their projects. The two kindergarten teachers ran back to their classrooms to get some photographs. The topic of the kindergarten investigation in both classrooms was "seeds." The photographs showed children observing, drawing, measuring, and writing about their plants. Some of the pictures showed students doing experiments with soil. The kindergarten teacher, Alicia, showed a picture of one student to the rest of the group and said, "This is the one kid who I had a great problem with, but look at him!" He was as actively engaged and as curious about the growth of his plant as the rest of her students.

The digital documentation and visual images of engagement won over the teachers to the approach. As the research shows, the reactions of students and positive signs of learning sway teachers. Excerpts from Fullan's (1991) summary of Lortie's (1975) large study about what teachers do and think may be relevant here:

5. Effectiveness of teaching is gauged by informal, general observation of students . . .
6. The greatest rewards mentioned by teachers were what Lortie labels "psychic rewards": "the times I reached a student or group of students and they have learned . . ."
7. . . . "striking success with one student" here and one student there was predominant source of pride (as distinct from raising test scores of the whole group). (as cited in Fullan, p. 120)

The teachers did not need achievement data to discern whether or not the approach was working. They were motivated by students' apparent level of engagement. The engagement they saw their students have in a topic cannot be underestimated in its significance. It was the cornerstone of seeing these typically low-achieving learners as competent students. If not totally committed to implementing the Project Approach, they at least saw the benefits of doing so.

Documentation: A Tool for Differentiation

Two philosophical underpinnings from Reggio Emilia (Edwards, Gandini, & Forman, 1998) relate directly to this study and to the field of gifted education: the role of the teacher as an observer and learner and the role of the teacher as the creator of contexts for learning. In Reggio Emilia, "Documentation is a process of reciprocal learning as it helps the teachers sustain the children's learning processes while at the same time learning from them" (p. 113). The teacher as learner defines a new goal for teachers: to gain a deeper appreciation and understanding of each child. When teachers take on the tasks of examining and studying interactions, thinking processes, and products of individuals or small groups of students, they uncover strengths and talents of children who historically have been low achieving. They gain a deeper appreciation of their role to facilitate growth in an individual child as opposed to transmitting content to the whole class. Every aspect of the environment is masterfully planned in Reggio Emilia to create contexts for growth (e.g., in cognitive, affective, and psychomotor domains). With a focus on the contexts that promote individual learning and growth, negative feelings or stereotypes about groups of children and their *capacity* to learn may dissipate. Teachers may be more open to identifying gifts and talents of children who are now underserved in gifted programs.

Documentation provides strategies to record what students know and what they want to find out. Documentation gives teachers information to differentiate their lessons according to interest, readiness, and learning styles. C. A. Tomlinson (personal communication, July 25, 2002) stated that differentiation in general education is one means of bringing equity and excellence together.

Empowerment and Classroom Management

For project-based learning initiatives to be most meaningful for students, teachers must structure their classrooms for students to have time in small-group and independent investigations. Working in smaller groups allows students to pick components of a topic that are more interesting for them, strengthening the potential for them to be self-motivated and highly engaged. Building a classroom community and shared responsibility for learning becomes critical. The behavior management systems that teachers use become intimately related to the success of the curricular initiatives. Teachers need to structure their classrooms with built-in time for students to be engaged in different activities at the same time.

An example of such structure is the Project/Activity Time at University Primary School. Students choose approximately three activities to do during this time block (one hour), and the teacher moves around to help individual or small groups of students with their investigations or other self-selected activities. The very nature of the choice system eliminates most behavioral issues because students select activities that are self-motivating and challenging for them to do. The teacher carefully orchestrates the choices so that there is a balance between activities that need more adult supervision or intervention with those that are more independently engaging. Several of the activities relate directly to the project investigations, and others may relate to a topic completely different than what is being explored by the group (e.g., independent studies, reading, math problem solving, art, etc.). The choice time provides an ideal opportunity for teachers to notice patterns in students' choices, preferences in learning styles, and entry points to expand students' comfort zones. The system of choices naturally provides a context for students to share dialogue about what they are doing and promotes the intrinsic feeling of accomplishing something new and sharing it with others. The sense of gaining expertise contributes to students' self-perceptions of competence. Delpit (1995) noted, "The teacher cannot be the only expert in the classroom. To deny students their own expert knowledge is to disempower them" (p. 32).

Research shows that discipline systems that put emphasis on extrinsic rewards undermine students' sense of autonomy and inevitably decrease students' interest in the learning tasks. This became obvious in this study when students focused on getting their stickers or "pluses" instead of on the discussion or topic at hand. Haberman (1991) also made the connection between teaching and discipline (or control) in his discussion of the differences between the "pedagogy of poverty" and good teaching:

> The few urban schools that serve as models of student learning have teachers who maintain control by establishing trust and involving their students in meaningful activities rather than by imposing some neat system of classroom discipline. For genuinely effective urban teachers, discipline and control are primarily a *consequence* of their teaching and not a *prerequisite* condition of learning. (p. 293)

Kohn (1999) said,

> Behavioral control is rampant in schools that serve mostly poor African American and Latino populations. Given the detrimental effects of these tactics with respect to intellectual, social, and moral development, this suggests that we are looking at one more piece of evidence that these kids get the worst kind of teaching. (p. 269)

For a comprehensive discussion of the use of rewards and punishments, see Kohn's book, *The Schools Our Children Deserve*.

At the end of the first year, data were not available to examine the impact the reform had on student achievement (as measured by standardized tests). However, through interviews, questionnaires, and field note data of discussions and meetings, the perceptions and expectations of teachers changed once they saw the engagement and performance of the students. It is truly significant that teachers saw their students as being more competent after than before the intervention. Teachers' perception of their students is the first step in recognizing potential and affording them the high quality curricular opportunities that encompass critical and creative thinking and lead to educational opportunity for all students.

Implications

The teachers I observed the first year shared their experiences with the new teachers before school started the second year. They became empowered to help each other with the approach, and they became accustomed to collaborating with each other for support and ideas. The significance of this empowerment cannot be underestimated. Instead of teachers creating a separate set of activities to look for gifted potential, these teachers began internalizing these strategies and, in all aspects of their instructional practices, creating their classrooms as whole contexts for looking for gifted behaviors or recognizing exceptional or potential talents. The necessity to develop special assessment tools to recognize potential may be diminished in classrooms where teachers are constantly seeking to recognize the talents of the students within the context of their everyday learning activities. These teachers were executing one of the key principles described by Tomlinson, Ford, Reis, Briggs, and Strickland (2004) for ensuring that students from culturally diverse and low-income groups are served well: "Educators practice the belief that high level curriculum can be a mechanism for identifying student potential as well as developing it" (p. 218). This is not to say that all needs of gifted students can be met within the general education classroom or that the Project Approach may replace current assessment tools—only that we *can* make the curriculum and instruction in general classrooms more conducive to developing potential and identifying talents.

This local reform effort contributes to our knowledge in the field of gifted education by illuminating three big ideas:

1. Changing the framework for curriculum and instruction can lead to change in teacher's beliefs if they see evidence of student engagement and growth.
2. The Project Approach changes the total learning environment and roles of teachers and learners. Project-based learning provides opportunities for students to reveal their strengths and talents. Educators in the field of gifted education may contribute significantly to the broader educa-

tional discourse by supporting this pedagogical style for all populations of students.

3. Documentation may become a key tool for identifying strengths in typically underserved populations of gifted children. The focus of gifted education has been heavily weighted toward finding evidence of performance and thus focused on student products. Documentation provides evidence of process; it reveals thinking processes and stages of concept development, allowing teachers to gain a better understanding of how their students think and learn.

In conclusion, the combination of the inquiry-based activities with a structured way to capture students' engagement and curiosity may raise teachers' expectations of potential, which ultimately may lead to closing achievement gaps between groups of students. More specifically, with teachers looking more positively at African American students and having higher expectations of them, there are greater chances for them to recognize their gifts and talents and to identify them for gifted and talented programs. With this reform initiative, the potential of all students is targeted for growth and development. Collaborating with general educators to create environments that recognize potential is responsive to the "need for planned, informed, proactive work on behalf of students from non-affluent and/or non-Caucasian backgrounds" (Tomlinson et al., 2004, p. 2). Equity and access start here.

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Appendix

End-of-Year Reflections Questionnaire for Staff—Year 1
$n = 10$
May 21, 2001

Question 1: Please describe some of the specific changes that you have made in your instruction over the school year.

- I have progressed on the path to becoming a facilitator. I now allow my students to express their learning "needs," and I guide their journey.
- More hands on, more PBL.
- Students excited and wanting to work on subject. Students wanting to develop their own products after seeing others bring projects.
- Planning ways for students to utilize their literacy skills incorporated with other curricula areas (science, social studies, health, etc.).
- No answer
- We had more hands-on learning. I let the kids ask more questions.
- I have enjoyed integrating the art with project-based learning. This is my first year of teaching.
- It has changed my thinking about science and exploring. I don't feel that I have to use worksheets all of the time.
- I used the web (first) and order of events that you can use in PBL more consistently in science this year.
- I have become more of a facilitator for learning. In a sense, the children become responsible for planning.
- KWL—Project and themes approaches

Question 2: Please describe the positive outcomes (if any) that you have seen as a result of those changes.

- This past Monday, I had 2 classes that were still giving items for our web as they left the room. They wanted to continue the learning.
- More motivation on kids and teachers, more collaboration among teachers and teachers and special teachers.

- Having students teaching others through their open discussion sessions. Indirect teaching more than direct teaching. Student observations and researching.
- Students were focused and able to discuss their ideas with their peers. There was little or no wasted time.
- The students are extremely interested in observing and measuring their plants.
- They remember more about the topic, and they love working on the project.
- I hope the children see the connection between art and what happens in their classrooms. I loved working with the other staff members so that we were working as a team.
- I saw my children engaged. My children were predicting, thinking, and investigating. Even the children that have behavior problems were engaged.
- The children became familiar with these ways of thinking, talking, & recording.
- "Enthusiasm" for learning. During projects my attendance for certain kids improved.
- Greater understanding of concepts because of the integration of theme into curriculum.
- Engagement increases.

Question 3: Please describe some of the negative outcomes (if any) that you have seen as a result of those changes.

- The sound level will sometimes get a bit higher than I personally prefer, and students will "clamor" (become physically active) attempting to express their views.
- None.
- None—to be very honest, well, maybe space for displays.
- Getting started was intimidating at first (early in the school year). Anne Marie helped by suggesting "just asking them to give me their ideas." Secondly, getting them to formulate questions (esp. related to the topic).
- Not enough room to display things!
- Nothing negative.

- I have been frustrated by how much I can do with one set of hands.
- It's not negative, but I run out of time.
- No support from administration for supplies (clipboards, etc.).

Question 4: What specifically about the Project Approach is difficult to implement?

- Documenting assessment. We need to adapt our assessment system to reflect PBL.
- The pictures are a challenge. Both our cameras are broken.
- Having adult help to break into small group supervision. Someone there to take pictures.
- Time and manpower to get small groups to work on a project.
- Taking pictures at those "special" moments and randomly—not posed.
- Knowing when and how to STOP.
- The finesse to creatively and timely display students at work (with good captions).
- Being able to work with students and document
- I think the children's general behavior is a problem. It is getting students settled enough to focus—and to be settled to make transitions.
- Just the units that are required for us to teach, but do not lend themselves to PBL.
- Small groups.
- Recording early in the year.
- Photos—documentation.
- Culminating project—could use some help.
- Getting started.

Question 5: What specifically about the Project Approach is more easily implemented?

- Brainstorming, expert visits/interviews are absolutely beautiful.
- Hands on, student directed is so much more motivating for both students & teachers—it's fun!
- Projects and class interests.

- Brainstorming.
- Webbing.
- Discussion.
- Memory drawings.
- Inventing a different approach to creating lesson plans.
- Learning comes naturally!
- Once the children are focused, then the hands-on aspects of the activity take over.
- Language/Literacy.
- Math.
- Writing.
- Reading.
- Webs.
- Hands on.
- Interest groups.
- Cooperation w/art/music.

Question 6: Describe what you think the goals should be for next year. How would you like help achieving those goals? Please feel free to use the back of this page if necessary.

- A deeper staff commitment to PBL—not just 2 "shallow" projects but at least 4 (1 per quarter) developed at a deeper level and integrating more subject areas.
- We need to address the PBL assessment issue in group staff development sessions (address in 2001–2002, then actually implement in 2002–2003).
- Actual implementation of PBL on a building-wide basis may take an administrative mandate! Follow-up mentoring on an almost daily basis for those questioning PBL could be a possibility. Continuation of the collaboration sessions—preferably by individual grade level (personally, I saw more PBL progress when grade levels were individualized than when they were combined. Let's reinstate the 2:15 time and get adequate classroom supervisors.
- Integrating across all the curriculum, especially the literacy and math areas.

- Time goals—how long projects can last in-depth so there is time for all projects. How community can become involved.
- Field studies, cameras (esp. digital), materials, setting things up for students to work on individual projects, culminating activities.
- To coordinate community involvement in field trip as well as in other aspects.
- General goals—to continue implementing different projects. I think the sooner I know what the project will be, the more I can plan for possible activities.
- To start out earlier in the year. Finish all levels of the project. Be a better planner. I would like someone to come in and check in with me. I also want to be a better board/chart maker and take pictures.

End Notes

1. The school name is a pseudonym.