Classroom Structures, Instructional Methodologies, and Education Benefits of Full-Day Versus Half-Day Kindergarten

Linda A. Freda
Seton Hall University

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CLASSROOM STRUCTURES, INSTRUCTIONAL METHODOLOGIES, AND EDUCATION BENEFITS OF FULL-DAY VERSUS HALF-DAY KINDERGARTEN

BY

Linda A. Freda

Dissertation Committee
C. M. Achilles, Ed.D., Mentor
Charles Mitchel, Ed.D.
Laura Levin Mardyks, Ed.D.
Teresa Faeley Shapiro, Ph.D.

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Seton Hall University
2005
Abstract

Classroom Structures, Instructional Methodologies, and Education Benefits of Full-Day versus Half-Day Kindergarten

Background: As of 2005, researchers continue to attempt to determine the benefits of full-day versus half-day kindergarten. While a large body of empirical evidence supports the benefits of full-day kindergarten on academic gains for low-SES, rural, and at-risk students, the same gains have not been found for middle- or high-SES students. Empirical evidence indicates qualitative and quantitative differences in time use; however, limited research exists that documents how additional time is used in full-day kindergarten.

Purpose: To determine the academic and ecological benefits of full-day kindergarten for students from non-disadvantaged backgrounds. Foci include reading achievement and differences in instructional methodologies, classroom structures, amount and content of instruction, teacher-parent interactions, and teachers’ perceptions.

Setting: Suburban, affluent public school district in northern New Jersey.

Population: Five kindergarten classes

Intervention: Established baseline of program processes, structures, and student reading achievement in pilot study of half-day kindergarten (2004-2005). Full-day, every day kindergarten (2004-2005) was assessed against half-day kindergarten.

Research Design/Method: Cross-sectional, descriptive study (Type 2). In both the pilot study and current study, researcher recorded instructional methodologies, classroom structures, teacher-student communicative exchanges, and content of instruction at one-minutes intervals using a modified Early Childhood Classroom Observation System (ECCOS). Monthly grade-level team meeting minutes were analyzed for themes and patterns to determine teachers’ perceptions of full-day kindergartners. The Developmental Reading Assessment (DRA) was used to measure reading achievement. Study results were compared to pilot study results.

Findings: In the full-day program, compared to the half-day program, the following were found: more developmentally appropriate practices; more time spent in child-initiated instruction; a greater variety of child-initiated structures used; less time spent in transitions; a greater amount of more consistent instruction in all content areas provided to students. Comparison of structures in the full-day and half-day program indicates qualitative differences in free-play, large-group listening, and individual instruction. Teachers perceived many advantages and no disadvantages associated with full-day kindergarten.

Conclusions: Full-day kindergarten provides ecological benefits. Measures other than reading may be more valid measures of academic gains as a function of program type.
ACKNOWLEDGEMENTS

I have been privileged and blessed to have had the incredible gift of having Dr. Charles Achilles as my dissertation mentor. Dr. Achilles was a constant source of inspiration and support. His vast intellect and insightful comments continuously challenged me to improve my study. I stand in awe of his prodigious memory and generous spirit and can not find the words to express my deep appreciation for his guidance and support over the past two years.

Sincere thanks to Dr. Charles Mitchell for his spiritual guidance and support during the Executive Ed.D program and through this dissertation process.

Thanks to my good friend Dr. Teresa Staparo who, despite giving birth to twin sons, found time in her hectic and sleep deprived schedule to read my "many" chapter revisions. Her comments and suggestions were always right on target and assisted me in seeing the underlying structure that was necessary to increase the clarity of my writing.

A special thank you to Dr. Laura Levin Mardyks for providing support and encouragement throughout my doctoral program. Your kind words and discerning edits were instrumental in improving the quality of my dissertation. Your friendship has been an incredible gift and a source of inspiration.
DEDICATION

The gifts we treasure most over the years are often small and simple. In easy times and in tough times, what seems to matter most is the way we show those nearest us that we've been listening to their needs, to their joys, and to their challenges.
-Fred Rodgers

This study is dedicated to my husband, Joe and my three incredible and talented children, Joseph, Alison, and Jessica. Their unconditional love, support, and encouragement sustained me through the doctoral program. I am thankful for their patience and understanding as I worked on this study and for listening with their hearts to my inner desires and needs.

A special thanks to my parents, Angela and Zack and my grandmother, Angela, for instilling in me a love of learning.

To my Uncle Earl, who was my inspiration to complete this journey, your presence on this earth will be sorely missed.
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CHAPTER 1
INTRODUCTION

Perhaps the single biggest error that educators make when working with children is to assume that competence is a property of the child and to fail to make the necessary observations of the child in context.
- Robert Piasta, 2000

Early childhood, birth through age 8, has been found to be a critical time for children to develop the physical, emotional, social, and cognitive skills they will need for the rest of their lives (The White House, 2002). Converging evidence from research into brain development has indicated that optimal neural development is enhanced when young children are provided with challenging learning experiences (Eicker, 2000, p. 1). Cognizant of brain research results which found that much of a child's intellectual development has taken place by the age of six (Perkay & Hass, 2000), and research results which indicate that quality preschool experiences optimize a child's school readiness (Landry, 2002), parents are increasingly enrolling their children in preschool programs. In 2000, nearly two thirds of America's 3- and 4-year olds attended some sort of preschool, up from 5% in 1964 (Behic, 2002). Consequently, providing children with their first school experience, previously the function of the kindergarten year in many communities has now become the role of preschool programs.
Background of the Problem

Kindergarten is viewed as a critical year to provide students with the prerequisite foundational skills for academic success. Kindergarten teachers are expected to address social, physical, behavioral, and academic skills and to individualize instruction to provide the support, and at times, intensive remediation necessary for students to develop the skills essential for school success (Ellicker, 2000). To meet these increased expectations, teachers and parents are advocating for increased instructional time, more time than is currently available in a half-day kindergarten program.

A full-day kindergarten program places increased demands on a school district’s available resources requiring additional teachers, materials, and classroom space. To justify this reallocation of district resources, educators and administrators are looking to research to determine the benefits, if any, of a full-day (FD) kindergarten program versus half-day (HD) kindergarten.

Prior to 1990, research results on the benefits of FD kindergarten as compared to HD kindergarten were ambiguous largely due to weak and atheoretic design. While some studies indicated greater achievement of students who attended FD kindergarten (Adcock, Hess, & Mitchell, 1980; Brierley, 1987; Goodwin, 1989), other studies reported no academic difference between students who attended FD and HD programs (Evans & Marken, 1983; Savitz & Drucker, 1984). Studies conducted since 1990 have indicated that all students benefit from attending FD programs; however, gains are greatest for children judged to be at-risk and/or children of low socio-economic status (Ellicker & Mathur, 1997; Evansville-Vanderburgh School Corporation, 2004; Fusare, 1997; Koopmans, 1991; Hildebrand, 2001; Wang & Johnstone, 1999).

Studies on the benefit(s) of attendance in a FD versus a HD kindergarten program have focused on student academic gains. This has tended to obscure the issue of how the additional time is utilized within the classroom setting, as well as changes in instructional
methodologies and/or classroom structures that result from the increased time. Accumulating evidence indicates that variations in how teachers use instructional time and actual time-on task impact student learning (Hardy, Lawler-Prince, & Slate, 1993). This knowledge, combined with studies showing that it is difficult for children to recapture lost learning opportunities (Slavin, Karweit, & Wasik, 1994) has increased attention to the quality and effectiveness of kindergarten programs.

Despite interest in this area, there is a paucity of information regarding how additional time is spent in FD kindergarten (Plucker et al., 2004). Historically, most kindergarten programs were modeled after traditional nursery schools with “curriculum goals that emphasized play, socialization, and easing the transition from home to school (Elliker & Mathur, 1997, p. 460). Since the 1990s, the focus of kindergarten programs has shifted from the development of play and socialization skills to the development of academic skills (Elliker & Mathur, 1997). Early childhood experts have criticized the trend to highly structured academic kindergarten programs and advocate strongly for more developmentally appropriate programming that provides opportunities for child-initiated classroom activities (Bredekamp & Copple, 2002).

How time is spent in full-day kindergarten programs is different both quantitatively and qualitatively from how time is spent in half-day kindergartens (Cryan, Sheehan, Wiechel, & Bandy-Hedden, 1992). Hardy et al. (1993) reported that practices found to meet the needs of young children, such as small-group instruction and individualized teacher-student interactions, were rarely observed in FD kindergarten classrooms. Conversely, the additional instructional time in FD kindergarten, when compared to other arrangements, often results in greater use of child-initiated activities, less time in teacher-directed group activities, more small-group and individualized instruction, and engagement in a significantly greater number of child-to-child social interactions (Cryan et al., 1992; Hough & Bryde, 1996; Elliker & Mathur, 1997; Martinez & Snider, 2001).

Elliker and Mathur (1997) found that, when compared to other options, FD kindergarten
programs provided higher levels of active engagement and higher levels of positive affect, in both absolute and proportional terms. Enrollment in FD programs has also been associated with improvement in student conduct (Cryan et al., 1992; Evansville-Vanderburgh School Corporation, 2004) and more teacher time devoted to helping children complete challenging tasks, developing friendships, resolving conflicts, and understanding other points of view (Martínez & Snider, 2001).

Statement of the Problem

Although the community in this study presently supports a FD kindergarten program, it may be difficult to continue to offer this program in subsequent school years while maintaining small class sizes at grade levels K-3. The impact of increasing enrollment from new construction in the community, combined with limited classroom space to meet the needs of the present students, may necessitate the reallocation of the classroom space currently slated for kindergarten.

Of additional concern to New Jersey School districts is the impact of recently passed legislation S-1701 (July, 2005) on school finances. This bill, S-1701, changes the spending growth limitation from 3% to 2 1/2 %, reduces the surpluses from 6% to 3%, reduces the spending growth limitation for courtesy busing, restricts the use of second ballot finance options, requires commissioner approval for budget line transfers that exceed 10%, and reduces the amount of unused cap that a district can bank. It has been projected that S-1701 will disrupt facility plans and negatively impact instruction and co-curricular activities. Under the provisions of S-1701, school leaders will find it increasingly difficult to contend with sharp increases in fixed costs over which they have no control (e.g., health benefits, insurance, utilities). To fund these increases, cuts may
have to be made to academic programs, services, and facility maintenance. FD kindergarten may be considered a luxury that the district cannot continue to finance. See Table 1 for comparison of costs.

To determine if the additional financial expenditures and allocation of available classroom space resourced for FD kindergarten are justified in an upper middle-class, affluent public school district, where 99% of the students attend at least 1 year of preschool, and 87% attend at least 2 years, additional data are required for district planning and decision making.

Purpose of the Study

The question facing many school districts considering whether or not to implement a FD kindergarten program is: Do the benefits justify the allocation of finances and classroom space at a time when taxpayers are increasingly looking for tax relief, and educators are attempting to maintain small class sizes in elementary grades (K-3)? This is especially critical in affluent school districts where most students attend quality preschool settings. Research has shown that while all students show increased academic gains when enrolled in FD kindergarten, the gains are greater for minority and disadvantaged students when compared to students from non-disadvantaged backgrounds (Yae & Lin, 2004).

The purpose of this study is to determine the benefits of FD kindergarten versus HD kindergarten for students from enriched, non-disadvantaged backgrounds. In this study, the researcher sought to determine if enrollment in a FD kindergarten program resulted in gains in reading achievement when compared to enrollment in a HD kindergarten program. The researcher also sought to determine differences in classroom structures, instructional methodologies, content of instruction, parent-teacher contact, and teacher perceptions of the advantages and disadvantages of FD versus HD kindergarten.
Table 1.

Comparison of Costs for Full-Day vs. Half-Day Kindergarten

<table>
<thead>
<tr>
<th></th>
<th>Full-Day</th>
<th>Half-Day</th>
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<tbody>
<tr>
<td><strong>Salaries:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher 1</td>
<td>42,452</td>
<td>42,452</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>40,403</td>
<td>40,403</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>38,500</td>
<td>20,201**</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>38,500</td>
<td></td>
</tr>
<tr>
<td>Teacher 5</td>
<td></td>
<td>42,504</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher 1</td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Teacher 4</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td>Teacher 5</td>
<td></td>
<td>18,800</td>
</tr>
<tr>
<td>**Classroom Supplies ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>**Transportation Cost ****</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total,</strong>**</td>
<td>304,859</td>
<td>157,035</td>
</tr>
</tbody>
</table>

Note. *2004-2005 salary guide. ** Part-time teacher. ***Classroom Supplies remain the same (5 classes). ****Transportation costs remain the same for both programs.

***** Difference in cost full-day vs. half-day (147,803 + 55,000 = 4.22 tax points)
The results of this study will be used for program improvement and future policy and finding decisions in the local school district.

Significance of the Study

Empirical evidence regarding the benefits of full-day kindergarten is mixed. While research indicates significant gains for students from disadvantaged or rural backgrounds, the same gains have not been found for students from middle or upper-class backgrounds (Yan & Lin, 2004). Elkina (2000) posited that a FD kindergarten experience will not make a significant difference for students from enriched home environments.

Achilles stated, "Teacher and pupil interaction is 'where it's at' in education" (Achilles & French, 1977, p. 4). This belief is also echoed by Pianta who stated, "...relationships between students and teachers constitute a large proportion of what goes on in school" (Pianta, 2000, p. 3). The study of such interactions requires classroom observations. This study will contribute to the literature by determining differences, if any, in classroom structures and instructional methodologies in FD kindergarten classrooms as compared to HD kindergarten classrooms in an affluent, upper-middle class community. This study will also note differences, if any, in academic gains in reading of students enrolled in HD kindergarten compared to students enrolled in FD kindergarten. The following areas will be addressed in this study:

1. Classroom structures (large-group instruction, small-group instruction, individual instruction, learning centers, cooperative learning, individual-creative activities, free play, snack)
2. Instructional methodologies (teacher-directed versus child-initiated)
3. Amount and content of instruction (reading, writing, math, science, social studies)
4. Content of teacher-student communicative exchanges (procedural, social/behavioral, instructional)
5. Reading achievement in Spring of kindergarten year
6. Teacher perceptions regarding the advantage(s) and/or disadvantage(s) of full-day kindergarten as compared to half-day kindergarten

Research Questions

Questions addressed in this study included:

1. What are the differences in instructional methodology (teacher-directed versus child-initiated) in full-day versus half-day kindergarten?
2. How do the following classroom structures differ in full-day as compared to half-day kindergarten:
   a. Large-group instruction
   b. Small-group instruction
   c. Individual instruction
   d. Learning centers
   e. Cooperative learning
   f. Individual-creative activities
   g. Free play
   h. Snack
   i. Transitions
3. What are the differences in amount and content of instruction (reading and writing, math, science, social studies), in both absolute and proportional terms, in a full-day versus half-day kindergarten?
4. How do teacher-student communicative exchanges differ in full-day as compared to half-day kindergarten, (procedural, social/behavioral, instructional)?
5. How does teacher-parent contact differ in full-day versus half-day kindergarten?
6. What are teachers' perception of the advantage(s) and disadvantage(s) of full-day as compared to half-day kindergarten?
7. What are the gains, if any, in reading achievement of students enrolled in full-day as compared to half-day kindergarten?

Context

This action-research, program evaluation study took place in a suburban, affluent, upper middle-class, public school district located in a town encompassing approximately 2.9 square miles, with a population of approximately 7,000 individuals. The district has received a District Factor Group (DFG) rating of "J," which indicates the highest socioeconomic status (SES) in the state of New Jersey; only 25 of 574 districts share that distinction (New Jersey Department of Education, 2004). However, that "J" distinction has a negative impact on the financial support that the district receives from the state and reduces the chances for grant qualification to subsidize education programs.

District parents support and are very involved in their children's education; consequently, high expectations and demands are placed on district educators in terms of student outcomes. While supportive of the school, some town inhabitants have recently become victims of restructuring in their own employment, or have seen their investments reduced dramatically in the economic downturn. Families are struggling to maintain their homes and lifestyles; therefore, they are closely scrutinizing the school budget to minimize its impact on property taxes. The 2003-2004 school budget was defeated, and the 2004-2005 school budget passed by a very narrow margin.

The K-3 school where this study was conducted housed 378 students in 2004-2005. Student enrollment has been steadily increasing, and with 30 new houses planned for construction in 2006, the enrollment is predicted to continue to rise.

The Superintendent, Board of Education, teachers, and parents have been examining the feasibility of full-day kindergarten for about 20 years. Since its inception, four half-day kindergarten sessions have been offered ranging in class size from 14 to 24
students depending on number of students registered. From 2001 to 2004 kindergarten class sizes have ranged from 15 to 24 students.

The children in the district possess the developmental background necessary to make good use of a full-day program: an interactive home life, good verbal skills, good fund of general knowledge, and prior school experience. However, with limited classroom space, a full-day program was previously not an option. Recent additions to the K-3 school have now made it possible for the district to offer FD kindergarten to all of its students for the 2004-2005 school year.

Thus with a window of opportunity to conduct the present study, the Superintendent authorized a pilot study (2003-2004). Results from the present study (2004-2005) will provide the basis for comparison and answering important planning and policy questions for the district’s leadership.

Pilot Study and Relation to Present Study

A pilot study was conducted during the 2003-2004 school year at the request of district leadership. Although the pilot study was conducted in 2003-2004, the year prior to the present study (2004-2005), the pilot study and the data obtained in it are an important part of the present study. The pilot study is considered as the baseline and the benchmark against which the new data was compared. The procedures and design of the 2004-2005 study built upon the pilot study and its conclusions.

The importance of documenting program processes, as well as program outcomes, guided both the pilot study and the present study. Early childhood experts have posited that a developmentally appropriate kindergarten program improves social, physical, behavioral, and academic outcomes of children by offering a consistent, high quality environment of care and education. Theoretically, the additional time provided in FD kindergarten should allow for the implementation of more developmentally appropriate structures (individual and small-group instruction, child-to-child interactions), teacher-
student communicative exchanges (behavior specific academic, social and behavioral feedback), and instructional methodologies (child-initiated vs. teacher-directed). The additional time also provides opportunities for increased time-on-task and enhanced teacher-parent interactions as teachers are responsible for fewer students (Elicker & Mathur, 1997).

The district's four half-day kindergarten programs were observed by the researcher in March and April of 2004 using the Early Childhood Classroom Observation System or ECCOS (Elicker & Mathur, 1997). The researcher modified the ECCOS to focus observation on classroom processes rather than individual students. Data were collected on the use of classroom structures (large-group, small-group, individual instruction, learning centers, free play, and snack), instructional methodology (teacher-directed vs. child-initiated), content of teacher-student communicative exchanges (procedural, instructional, social/behavioral), amount and context of instruction (reading, writing, math, science, social studies), and ratio of transitions to activities. A time sampling procedure was used to collect data at 1-minute intervals consisting of 40 seconds of observation followed by 20 seconds of data recording. Each half-day class was observed three times, from the beginning to the end of the school day, for a total of 495 1-minute intervals. Comprehensive profiles of classroom activities were prepared following Elicker's and Mathur's 1997 guidelines: (a) determine the total number of observations in each category, (b) convert these frequencies to percentages of total observations for each program type, and (c) convert each activity percentage to minutes per day based on total class time available.

To establish the reliability of the researcher's observations, two college-educated individuals, not employed by the school district were trained on the observation instrument. The researcher reviewed and provided examples of each category contained on the ECCOS. Inter-observer agreement was established in a series of three 20 minute videotaped classroom observations prior to data collection. A level of at least 80% exact
agreement (\( n \) agreements + \( n \) disagreements) was obtained between the researcher and the other two individuals (See Table 2).

The researcher met with the two half-day kindergarten teachers in March, 2004 to review and provide examples of each of the categories contained on the Teacher-Parent Interaction log. The teachers recorded the type and form of each parent contact that occurred during April 2004. Responses in each category were totaled and expressed as a percentage of total contacts.

Table 2

*Inter-Observer Agreement (Pilot Study)*

<table>
<thead>
<tr>
<th></th>
<th>Researcher/Individual A</th>
<th>Researcher/Individual B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial 1</td>
<td>33 + (33 + 4) = 90%</td>
<td>34 + (34 + 3) = 92%</td>
</tr>
<tr>
<td>Trial 2</td>
<td>35 + (35 + 6) = 86%</td>
<td>38 + (38 + 3) = 93%</td>
</tr>
<tr>
<td>Trial 3</td>
<td>31 + (31 + 5) = 87%</td>
<td>33 + (33 + 3) = 92%</td>
</tr>
</tbody>
</table>

*Note. Formula: \( n \) agreements + \( n \) agreements + \( n \) disagreements = % agreement*

Comments from monthly grade-level meeting minutes were subjected to content analysis to ascertain the perceptions of the kindergarten teachers regarding the
advantages and disadvantages of FD versus HD kindergarten. Each teacher reviewed the researcher's summary of the advantages and disadvantages to validate the content.

Student reading achievement was measured by each classroom teacher in March and April, 2004 using the Developmental Reading Assessment (DRA) (Beaver, 2001). These data are on file in the students' permanent records folders.

Demographic data (age, gender, ethnicity, number of years of preschool, eligibility for free milk) were obtained for all students through a review of kindergarten registration materials.

Delimitations of Study

This study is delimited to the kindergarten program and students in one K-3 elementary school in a suburban, affluent, upper middle class, public school district located in northern New Jersey. Four half-day kindergarten programs, taught by two teachers with Bachelor's degrees in early childhood education, were observed in the pilot study (2003-2004). The two teachers observed have been teaching in this kindergarten setting for 3 years, and both have previously taught in preschool settings.

Due to medical reasons, one of the lead teachers was not able to return to teaching during the study year (2004-2005). Consequently, only one of the two lead HD kindergarten teachers taught in the FD program during the study year (2004-2005). Four additional teachers needed to staff the FD program were hired. One teacher has a Master's degree in Reading and worked for 2 years (2002-2004) as an instructional assistant in the district's HD kindergarten program. Two teachers have Bachelor's degrees and are both currently enrolled in graduate programs. Both teachers were employed by the district during the 2003-2004 school year; one as an instructional
assistant in the HD kindergarten program and the other as an instructional assistant in one of the district’s second-grade classrooms. While employed as an instructional assistant in a second-grade classroom, this individual frequently substituted in the HD kindergarten classroom. The fifth teacher hired to teach in the HD kindergarten program was previously employed as a lead teacher in a half-day transitional kindergarten program in an affluent, upper middle-class school district that also has a “P” rating. All teachers have been certified “Highly Qualified” as per state of New Jersey guidelines (NJDOE, 2004). Informed consent was obtained from all teachers prior to participating in the pilot study and the present study.

The school district that is the focus of this study does not administer any standardized tests until third grade. To measure gains in reading achievement, classroom teachers administer the Developmental Reading Assessment (DRA) to all students in grades K-3. All classroom teachers have been trained on this assessment instrument.

The ECCOS, with modifications in focus of observation (classroom processes versus individual students) and addition of communication categories (procedural, social/behavioral, and instructional), was used to collect data. This observation system, with its time interval sampling, was chosen due to ease of recording classroom observations. This instrument has been previously used and validated in kindergarten research (Ellicker & Mathur, 1997) and was used to collect data in the pilot study.

Each teacher maintained a parent-teacher interaction log. This log documented the form (phone, scheduled conference, unscheduled conference) and content (academic, social, behavioral) of contact with parents. This log was designed by district leadership and was used in the pilot study.
No student in the study, or in the pilot study, was from a disadvantaged background as indicated by eligibility for free milk.

Limitations of Study

It was determined that a research assistant, rather than the researcher, should collect the data in the present study because of concerns of the Institutional Review Board (IRB) at Seton Hall University regarding the potential coercion of subjects. Consequently, many of the observational nuances, available only to the researcher in the classroom, may have been lost.

To achieve the purpose of this study, the sample size is small and limited geographically. Ability to generalize research results to other school districts is limited.

All students are accepted into the kindergarten program once they meet minimum age requirements. Therefore, students' innate abilities and intelligence were not controlled for, nor was the quality of the students' preschool experiences.

Different cohorts of students, receiving instruction for different lengths of time, formed the pilot study group and the comparison group. The researcher compared cohorts demographically (gender, age, number of years in preschool, ethnicity, eligibility for free lunch) to analyze similarity between cohorts. Although the quality of the preschool programs was not assessed, the amount of formal preschool experience was considered.

The students were not randomly assigned to classrooms. Students were assigned to class to achieve gender and age balance.

The classroom space and location differed between the pilot study and the present study. During the pilot study the two kindergarten classrooms were located at the end of the first grade wing. Kindergarten students shared an entrance and playground area with students from other grade levels. In the present study, the kindergarten classrooms were located in the kindergarten/preschool wing. The kindergarten classes have a separate
entrance and playground area. Kindergarten classrooms in both the pilot study and current study were similarly configured and contained approximately the same amount of square footage.

The impact of the researcher and the research assistant on the observation is unknown. The presence of an observer has the potential to affect the situation being observed in unknown ways (Paron, 2002). The teachers and students may behave in an atypical manner and the perception(s) of the observer could impact the data. To limit the impact of the researcher on the observation, the researcher in the pilot study, and the research assistant in the present study spent time in the kindergarten classrooms prior to data collection to allow students to become familiar and accustomed to their presence. Inter rater agreement was obtained on the observation instrument to ensure consistency of the researchers' observations.

Only teacher perceptions were utilized in this study. No attempt was made to explore the perceptions of parents, administrators, or other school staff.

Definitions of Terms

For the purpose of this study, the following definitions are provided for clarity and consistency. Unless noted otherwise, definitions were taken from ECCOS (Elicker & Mathur, 1997).

**Cooperative Learning:** Child does creative work or problem-solving in small groups (2-10 students). Teacher provides task emphasizing cooperation. Children structure, plan, and work without conscious teacher guidance.

**Early Childhood Education:** Education of young children from birth through age 8 (Bredekamp & Copple, 2002).

**Free Play-Indoors:** Child freely chooses activities; process-oriented with play
materials, rather than teacher product or teacher goal oriented. Routinely available not put out by teacher.

**Free Play-Outdoors:**
Child freely chooses activities outdoors.

**Full-day Kindergarten:**
Kindergarten classes offered 5 days a week for 6 hours and 35 minutes per day. This adheres to schedule of district in present study.

**Half-day Kindergarten:**
Kindergarten classes offered 5 days a week for 195 minutes. This adheres to half-day time schedule of district in present study.

**Individual Instruction:**
Teacher structured; child works at assigned tasks individually. Includes one-on-one instruction with teacher, structured independent work, and work sheets.

**Instructional:**
Teacher statements that focus on teaching and learning of subject matter content.

**Large Group-Active:**
Led by teacher; more than 10 children. Child is active (either talking or doing) more than 50% of the interval.

**Large Group-Learning:**
Led by teacher; more than 10 children. Child is listening, waiting, talking, or doing something active less than 50% of the interval.

**Learning Centers:**
Child engages in teacher-structured activities, prepared and set up by teacher in a particular place. Independent or small group work not continually led by teacher.

**Procedural:**
Teacher statements pertaining to structure, routines, or classroom rules.

**Quality**
Global construct that refers to classroom-level variables that affect children's development. These include
developmentally appropriate instructional methodologies/structures, teacher-student interactions, social-emotional climate of classroom (Pianta & La Paro, 2003)

Small Group Activity: Structured and led by teacher, 2-10 children.
Social-Behavioral: Teacher statements that foster social decision making or socially acceptable behavior.

Organization of the Study

Chapter 1 consists of a brief introduction and background of the problem, statement of the problem, purpose of the study, significance of the study, questions addressed by the study, context of the study, delimitations of the study, limitations of the study, and definitions of terms used in the study. Also included in chapter 1 is a review of the pilot study and its relationship to the present study.

Chapter 2 presents a review of the literature related to the historical background of kindergarten, early childhood education, controversy surrounding full-day kindergarten, classroom environment, class size research, developmentally appropriate practices, and research results documenting the benefits, if any, of full-day versus half-day kindergarten programs.

Chapter 3 describes the design of the study, the methodology, and the procedures used in the study. It discusses the population, instruments, data collection procedures, and statistical methods employed in this study.

Chapter 4 presents the data and results of the analyses of these data.

Chapter 5 presents a summary and discussion of the findings of the current study, conclusions derived from the findings, implications of findings for educational policy and practice, and recommendations for further study.
CHAPTER 2
LITERATURE REVIEW

This chapter provides a review of the literature related to historical background, early childhood education, classroom environments, class size research, developmentally appropriate practices, and research results documenting the benefits, if any, of full-day (FD) versus half-day (HD) kindergarten programs.

Historical Background

The concept of kindergarten originated in Germany in 1837, when Friedrich Froebel established the first "child garden." Heavily influenced by the works of Rousseau and Pestalozzi, Froebel selected the name kindergarten, or "child's garden" as a place where the child's inner self and potential could unfold like a flower (Seefeldt, 1999). Froebel is considered the founder of early childhood education not only because he was the first to design a curriculum specifically for young children, but also because he introduced play as a major medium for instruction (Seefeldt, 1999, p. 7). Froebel believed that children's play was significant; therefore, he stressed the importance of play, songs, stories, and structured activities as the best method for helping children understand and learn moral, physical, and intellectual principles (Seefeldt, 1999). Froebel's kindergarten focused on spiritual and character development rather than development of academic skills (Dombrowski, 2001).

Margarethe Schurz, a German immigrant and disciple of Froebel, established the first kindergarten in the United States in 1856 when she opened a German-language kindergarten in Watertown, Wisconsin. This kindergarten was private and limited to the children of her relatives (Dombrowski, 2001). Elizabeth Peabody, an advocate for social reform, met Schurz in Boston in 1859. Subsequent to this meeting, Peabody opened the first private English-language kindergarten in Boston in 1860 (Weber, 1969). By the
1870s an organized U.S. movement for kindergarten education had begun (Dombrowski, 2001, p. 528).

The expanded growth of kindergarten occurred within the context of the growing social awareness of the late 19th century (Rudolph & Cohen, 1984). Immigrants and the native urban poor were two groups of children that were of particular concern to kindergarten social reformers. Kindergarten was increasingly viewed as an effective means to social reform and Americanization of immigrant children (Dombrowski, 2001); consequently, by 1910, publicly funded kindergarten was established within urban school districts to address the needs of the growing immigrant population (Pawl, 2003).

As kindergarten moved from the private to public sector, much of Froebel’s original curriculum and activities was lost (Dombrowski, 2001). Influenced by educators and developmental theorists such as John Dewey and Maria Montessori, kindergarten continued to be a child-centered, hands-on social experience; however, emphasis was also placed on connecting a child’s experiences in kindergartens to real-life experiences (Dombrowski, 2001). Although the social benefits of kindergarten were apparent, the academic benefits of kindergarten attendance remained unclear (Dombrowski, 2001). Many educators viewed kindergarten as non-essential; therefore, these programs were often the first cut when districts faced financial and space limitations.

Prior to World War II, most kindergarten programs were full-day programs with the teachers teaching in the morning and visiting the children’s homes in the afternoon for the purpose of parent education (Rudolph & Cohen, 1984). During World War II, the length of the kindergarten day was shortened to a half-day due to a shortage of teachers and building space (Karweit, 1992). By the early 1960s, 90% of all kindergarten programs were half-day programs.
Early Childhood Education

Recent research in brain development has found that the first few years of life are a critical period for learning and behavioral development (Ellicker, 2000, p. 1). “From prenatal development through the early childhood years, appropriate sensory and cognitive stimulation, challenging learning experiences, and emotional support are essential for optimal development of children’s neural networks and information processing abilities” (Ellicker, 2000, p. 3).

Children’s experiences in kindergarten exert a major impact on their subsequent learning and school success (Vecchiotto, 2001). In kindergarten, children begin to integrate their cognitive, social, and physical competencies. School leaders, cognizant of this fact, have begun to focus attention on the importance of early childhood education in the belief that preparing all students to be “ready to learn” by first grade will help to reduce the achievement gap between groups of students (Plucker et al., 2004, p.1). The kindergarten year is of critical importance to disadvantaged students when you consider that middle-class children in preschool outperformed disadvantaged children in kindergarten on tests of vocabulary, memory for numbers, and other basic skills (Stipek, Feller, Daniels, & Miburn, 1995). Similar results were found in the Early Childhood Longitudinal Study, Kindergarten Cohort or ECLS-K. In this national study conducted by the U.S. Department of Education, data analyses indicated that White and Asian children’s scores on literacy and math tests were consistently higher than those for Black, Hispanic, and Other children (Lee & Burkam, 2002, p. 15). Data indicated that differences in achievement status at kindergarten entry are very large with low-SES children scoring significantly lower than middle- or high-SES children (Lee & Burkam, 2002). Data obtained from the ECLS-K suggested that children enter school with considerable variation in cognitive status, and that substantial differences are found in children’s performance on cognitive tests of mathematics and reading administered at the
Beginning of the kindergarten year by race, ethnicity, and SES (Lee and Burkam 2002, p. 21).

Based on the research results, educators have advocated for full-day kindergarten programs to address this achievement gap. Educators posit that providing an intellectual environment that is rich in language and provides numerous opportunities for children to interact with well-educated adults in print-rich environments will assist in closing the achievement gap (Rothstein, 2004, p. 140).

The kindergarten year is attracting attention from parents, teachers, and administrators. Ernest Boyer, past President of the Carnegie Foundation for the Advancement of Teaching, stated “The early years are transcendently the most important, and if this nation wishes ultimately to achieve excellence, we will give greater priority and attention to the early years…” (as reported in Parkay & Hass, 2000, p. 333).

Politicians have recognized the political importance of the kindergarten year. Sixteen governors, in their state-of-the-state addresses discussed issues surrounding kindergarten (Christie, 2003). The consensus would suggest that all-day, every-day kindergarten should be standard offerings in public schools. Arizona Governor Janet Napolitano stated, “Our current budget crisis should not deter us from moving forward with voluntary all-day kindergarten…” (Christie, 2003, p. 5).

State policies and funding for full-day kindergarten vary across the nation. During the 2003-2004 school year, seven states provided an incentive to districts to offer full-day kindergarten (Alaska, Georgia, Illinois, Nebraska, New York, Pennsylvania, and Wisconsin), but 19 states, because there is no difference in funding for full-day versus half-day, provided a disincentive for full-day kindergarten (Arizona, Colorado, Delaware, Idaho, Indiana, Kansas, Kentucky, Maryland, Minnesota, Montana, Nebraska, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Utah, and Wyoming). Eight states have a compulsory school age of 5 that effectively mandates
Kindergarten attendance for children. Compulsory attendance age in the remaining states ranges from age 6 to 8 (Indiana Department of Education, 2004).

State policies vary widely with respect to FD kindergarten. As of 2004, 40 states require local school districts to offer a kindergarten program; however, attendance is required in only 14 of these states (Indiana Department of Education, 2004). The length of the school day also varies across the states. Data from the Council of Chief State School Officers (CCSSO) indicate that the length of a full-day is 6.0 hours in 8 States, 5.0-5.5 hours in 10 states, and 8 states consider a 2.0-4.5 hour range acceptable for a full-day program (Vecchiotti, 2001, p. 12). For HD programs, 20 States consider between 2.0 and 2.5 hours acceptable, 6 States consider between 2.75 and 4.0 hours adequate, and 1 State considers 1 hour acceptable (Vecchiotti, 2001, p. 12).

Since the 1970s, the percentage of students in the United States enrolled in FD kindergarten programs has steadily increased from 12% in 1970 to 42% in 1990, to 56% in 2001 (Walston & West, 2004). Enrollment in FD kindergarten varies across states ranging from 84% in the South, to 57% in the Midwest, to 38% in the West, to 37% in the Northeast (Walston & West, 2004, p. 12). Full-day kindergarten is more prevalent in public schools in the city (64%) and in small towns/rural areas (63%) compared to suburban/large towns (46%) (Walston & West, 2004, p.12). Full-day kindergarten is more likely to be offered in public and private schools that serve a high concentration of minority students and/or students of low socioeconomic status (Walston & West, 2004).

Controversy Surrounding Full-Day Kindergarten

Although parents reported satisfaction with any type of kindergarten program, 98% of parents and teachers surveyed favored FD kindergarten programs over HD or extended-day kindergarten programs (Hough & Bryde, 1996). Despite this support, implementation of FD kindergarten continues to engender controversy. Educators and taxpayers debate the educational, social, and behavioral advantages of implementing FD
kindergarten in view of the added financial burden that this places on a school district. Administrators and taxpayers point to the additional staff, materials, and space that a full-day program requires at a time when taxpayers are feeling overburdened by property taxes (Indiana Department of Education, 2004), and many school districts are finding it difficult to pass school budgets. This view is shortsighted when you consider the staggering long-term financial costs of providing remedial services after a student has already failed (Slavin et al., 1994). Academic failure in the early grades has severe consequences with respect to self-esteem, social development, and opportunities for advanced education and meaningful employment (Lyon, 2001). The personal and societal costs of school failure are positively correlated with unemployment, low wages, poverty, and crime (Mercer, Campbell, Miller, Mercer, & Lane, 2000). In some states, the future size of prisons is predicted by fourth grade reading failure rates (Lyon, 2001).

There has been growing consensus among educators that effective interventions in preschool and kindergarten will pay off in later achievement and reduced need for remedial and special education (Slavin, 2004). One such intervention is offering a FD kindergarten program. While an expensive intervention, the reduced number of students that a teacher is responsible for in a FD kindergarten program will theoretically enable the teacher to be more diagnostic in assessing student needs and implementing the support and instruction necessary to address cognitive, social, and behavioral delays (Ellicker, 2000).

Social changes have exerted a major impact on programs offered by school districts. Most parents of 5-year-old children in the United States work full-time outside the home (U. S. Census Bureau, 1994). The increasing number of single-parent and dual-income households has created an enormous need for child care, and as a result, a strong demand for FD kindergarten (Elkind, 2000). Opponents of FD programs strongly argue that schools should not be in the practice of providing "custodial" care for children (Ellicker & Mathur, 1997; Elkind, 2000). Elkind (2000) characterized FD kindergarten as
“a good illustration of how a social problem gets misinterpreted and given an educational solution” (p. 15). Elkina’s view is shortsighted when you factor in the inability of low SES parents and/or single parents to afford either quality childcare or pre-kindergarten programs. Of additional concern is the impact that the lack of exposure to language and foundational knowledge/skills has on the cognitive, social, and behavioral development of low SES children.

Critics of FD kindergarten programs have also cited concerns that FD programs may increase student stress through the introduction of inappropriate curriculum approaches (Bredekamp, 1987) and the stamina of less mature children who may become overly tired with a full day of instruction (Fusaro, 1997).

Advocates of FD kindergarten state that in addition to assisting families in meeting child-care and transportation needs, FD kindergarten allows children and teachers time to explore topics in depth, reduces the ratio of transition time to class time, provides for greater continuity of day-to-day activities, and provides an environment that favors a child-centered, developmentally appropriate approach (Rothenberg, 1995). According to supporters, a FD kindergarten program reduces student stress and improves academic outcomes by offering a consistent, high quality environment of care and developmentally appropriate education (Burts, Hart, Charlesworth, & Kirk, 1998; Elicker & Mathur, 1997).

Full-day kindergarten in a small-class setting allows for the development of positive and nurturing student-teacher relationships. These relationships are critical in forming and shaping a student’s path in school (Pianta, 2000, p. 17). According to Pianta, “Relationships with teachers are an essential part of the classroom experience for all children and a potential resource for improving developmental outcomes” (2000, p. 21). Student-teacher relationships can regulate a child’s experience in classroom settings. These relationships can stabilize his/her emotional experiences in the classroom, provide structure and assistance with peer interactions, provide a sense of security to support
his/her exploration and mastery, and provide interactions that help shape his/her ability to self-regulate behavior (Pianta, 2000). The ability of teachers to form these supportive relationships is enhanced in a FO program where teachers are responsible for a fewer number of students and spend a greater amount of time getting to know each student; thereby enhancing their ability to offer more frequent and individualized feedback.

Classroom Environment

Since the 1970s, there has been growing awareness of the importance of the social context on an individual's behavior. Federal legislation (e.g., No Child Left Behind) emphasizes the importance of quality in early education classrooms (LaParo, Pianta, & Stuhlman, 2003). Consequently, realizing the importance of a child’s daily experiences within a program (microsystem), new programs need to be evaluated not only from an academic perspective, but from an ecological perspective as well (Bronfenbrenner, 1986).

Models of school learning have evolved over recent years to include the social context (Wang, Haertel, & Walberg, 1990). According to these models, in addition to home environment and student characteristics, the classroom environment exerts a major impact on schooling outcomes (Wang et al., 1990). In a synthesis of factors that influence learning, Wang et al. (1990) found classroom climate variables to be as important as individual student characteristics. Classroom and instructional practices found to enhance positive learning outcomes included effective classroom management, quantity and quality of instruction, positive and productive student-teacher interactions, a classroom climate conducive to learning, and a peer culture supportive of academic achievement (Wang et al., 1990). Positive student outcomes were associated with cooperative, cohesive, goal-directed classrooms in which a variety of educational approaches and activities are employed (Wang et al., 1990).

Converging research indicates that attending kindergarten, and the kinds of instruction and social interactions with adults that occur in kindergarten, impact student
achievement (Pianta & LaParo, 2003). Therefore, providing children with early school experiences that enhance the likelihood of success in later years has led to a focus on the classroom environment (Meyer, Wardrop, Hastings, & Linn, 1993; Slavin, et al., 1994). Researchers have found that the instructional methodologies that a teacher uses and the types of interactions that occur between the child and the adults in the classroom setting exert a measurable impact on student achievement and social competence (Meyer et al., 1993). Of paramount importance to educators is the long-term impact, both negative and positive, that a child’s early educational experiences can exert on his/her academic achievement, social development, and behavioral competencies (LaParo et al., 2003).

While research has documented the impact of children’s experiences in early childhood settings on academic and social development; further research is needed to document the type(s) of experiences that positively impact social and academic growth in kindergarten settings. To address this need, Pianta, LaParo, Payne, Cox, and Bradley (2002) designed a study to identify the factors associated with observed variations in classroom quality. In this basic research study, the researchers sought to contribute to the knowledge base by identifying the correlates and consequence of “quality” so that policies and practices can be developed that enhance children’s experience in kindergarten. Two hundred and twenty-three students from Arkansas, North Carolina, and Virginia participated in the study. Each of the students attended a different kindergarten classroom. The 223 classrooms were in more than 120 schools and numerous school districts located in small urban, suburban, and rural areas with the majority of classrooms located in suburban areas (Pianta et al., 2002).

To conduct this research, Pianta et al. (2002) relied heavily on parallel research conducted in early childhood settings to operationalize the concept of “quality” and to identify instruments for measurement and observation. The researchers observed, in time-sampled, format, discrete activities and behaviors of teachers with a target child in order to describe what takes place in kindergarten classrooms (Pianta et al., 2002, p. 228). The
researchers observed teacher interactions with a target child (sensitivity, intrusiveness), teacher-initiated efforts to improve student achievement outcomes (literacy instruction, evaluative feedback, etc.), and classroom-level teacher-initiated efforts at promoting a child-centered emotional environment (positive emotional climate, classroom management).

Analyses of classroom observation data indicated that in the "average" classroom, the child was involved in structured teacher-directed activities for 44% of the observed intervals, in center activities for 18% of the intervals, in seatwork 17% of the observed intervals, in transition for 11% of the intervals, and in free time for 8% of the intervals (Planta et al., 2002, p. 232). Data indicate that the percentage of intervals in which the target child was engaged in each type of activity varied across classrooms, with some children spending almost no time in a particular activity and other children spending the majority of their time in that same activity.

In regard to teacher-child interactions, the children interacted with teachers during large-group (44%) instruction more often than in small-group (10%), or one-to-one contexts (8%). Across the 223 classrooms the average child was exposed to academic teaching 21% of the observed time and to teaching of social rules 1% of the time (Planta et al., 2002). Eight children were never exposed to any academic teaching during the observed intervals.

The researchers did not find any relationship between school enrollment and location to any of the quality composites (teacher positivity, instructional climate, and child-centered climate). Results indicated that the more students in the class who were eligible for free/reduced lunch, the lower the rating of child-centered climate (Planta et al., 2002). Results also indicated that higher ratios of children to adults in classrooms were related to lower levels of teacher positivity and lower instructional climate (Planta et al., 2002, p. 233). Children whose family background was characterized by higher levels of maternal education were in classrooms receiving higher ratings on instructional
climate, and children from homes with higher average family income were in classrooms that were rated higher in child-centered climate and teacher positivity (Pianta et al., 2002).

The researchers concluded that “kindergarten classrooms vary widely in the nature and form of experiences offered to children... there was no typical kindergarten classroom.” (Pianta et al., 2002, p. 235). These findings confirm those of Meyer et al. (1993) in demonstrating the “incredible variability in children’s experiences as a function of the classroom they attend” (as cited in Pianta et al., 2002, p. 235).

The data from this research also support the lack of equity in educational experiences as a function of income. The researchers observed lower quality classroom experiences in schools located in low-SES districts (Pianta et al., 2002). The results of this research would suggest that, in order to improve outcomes for students from lower socioeconomic backgrounds, educators and politicians should not only provide parity in funding, but should also direct their efforts at establishing structures that improve the quality of practices, activities, and teacher-child interactions within kindergarten classrooms.

Class Size

Since the 1920s, there have been numerous studies designed to document the benefits of small class size on student outcomes. Informal reviews of these studies in the 1960s concluded that differences in class size generated little to no effect on student outcomes (Biddle & Berliner, 2002, p. 13). During the 1970s there was renewed interest in class-size research as a result of meta-analyses of a number of small class size studies. Over 100 studies were reviewed by Glass and Smith (1978) and Robinson (1990) (as cited in Finn, Pannozzo, & Achilles, 2003, p. 321). Results of meta-analyses showed that reduced class size (less than 20 students) was associated with gains in student
achievement and that these gains are greater in the early years and among students from low-income homes (Finn et al., 2003).

In the 1980s, political debates began in state legislatures in the United States regarding the effects of small class size on student outcomes (Biddle & Berliner, 2002). As a result, some states began trial programs or large-scale field experiments. One such study was the 4 year STAR (Student/Teacher Achievement Ratio) study, funded by the Tennessee legislature.

Prior to the STAR study, class-size experiments were criticized for poor research designs that included small sample sizes, non-random assignment of students to experimental and control groups, short-term exposures to small classes, single measures of student success, and single school settings (Biddle & Berliner, 2002, p. 13). The STAR study addressed these design weaknesses and, as a result, has become the largest and best-designed field experiment ever undertaken in education (Finn & Achilles, 1990). STAR is a longitudinal, statewide, randomized experiment to determine the effects of small classes (about 13-17 pupils per class) on student achievement and development in primary grades (K-3)” (Achilles & Finn, 2002, p. 122).

In STAR, researchers compared the achievement of early-grade students assigned randomly to one of three class conditions: small (S) (13-17 students); regular (R) (22-25 students) and regular with a full-time teacher aide (RA) (22-25 students) (Biddle & Berliner, 2002). Students entering kindergarten in 1985 were randomly assigned to one of the three class types and remained in this class type for 4 years. Each school that participated in the study agreed to sponsor all three class types and to randomly assign both teachers and students to the classes (Finn & Achilles, 1990). The schools included in the study represented urban, inner-city, suburban, and rural school districts.

Analyses of data obtained in the STAR study indicated a number of benefits of small classes including "improved teaching conditions, improved student performance during and after the experimental years, improved student learning behaviors, fewer
classroom disruptions and discipline problems, and fewer student retentions” (Finn & Achilles, 1999, p. 98).

In regard to student academic achievement, statistically significant differences were found among the three class types (S, R, RA) on all achievement measures in every year of the experiment (K-3) with students in small classes evidencing superior academic performance when compared to students in the other class types (Finn & Achilles, 1999). The benefits of small class were found for both boys and girls, and no significant differences were found between achievement of students in a regular class as compared to a regular class with a teacher aide in any year of the study (Finn & Achilles, 1999). The researchers also found that the benefits were substantially greater for minority students or students attending inner-city schools in each year of the study (Finn and Achilles, 1999, p. 98). The small class advantage for minority students was two to three times as large as that for Whites (Finn & Achilles, 1999, p. 100).

Data from the STAR study also indicated that students in small classes exhibited superior engagement behaviors in Grade 4 (more effort spent on learning activities, more initiative taking, less disruptive or inattentive withdrawn behavior) (Finn & Achilles, 1999, p. 99). Engagement behaviors enhance and facilitate learning and are strongly correlated with academic performance (Finn & Pannozzo, 2004). A review of 15 studies in which the relationship between class size and students’ learning or social behavior was examined found similar results despite differences in the size and quality of the individual studies (Finn & Pannozzo, 2004, p. 81). The studies showed a positive impact of smaller classes on students’ learning behavior. Small classes were characterized by less inappropriate classroom behavior, fewer disruptions, and fewer problems requiring disciplinary referrals than were larger classes (Finn & Pannozzo, 2004, p. 81).

Teachers do not change their fundamental teaching strategies when given a small class. The STAR study found that small classes “are academically superior not because they encourage new approaches to instruction but because teachers can engage in more of
the basic strategies they have been using all along (Finn & Achilles, 1999, p. 103). Class size is directly related to the amount of time teachers spend on instruction and student engagement in learning. Small classes increase student engagement in learning because “every student is on the firing line” (Finn & Achilles, 1999, p. 103). With smaller class sizes, every student is important to the teacher and every student feels more pressure to contribute and participate in the learning process.

The classroom processes that distinguish small from regular classes have not been fully identified (Biddle & Berliner, 2002). Observations of teacher-pupil interactions, pupil participation, pupil satisfaction, method of instruction, subject emphasis, physical conditions, classroom atmosphere, quality of classroom activities and use of instructional aides have revealed very few effects of class size (Finn & Achilles, 1999). Stropson (as cited in Finn & Achilles, 1999) stated that class size did not impact the proportion of time teachers spent interacting with the whole class, with groups, or with individual pupils.

In the Success Starts Small study, the researchers found a greater percentage of on-task events and a smaller percentage of institutional events in small classes (1:14) as compared to regular classes (1:24) (Achilles, Kiser-Kling, Aust, & Owen, 1995). Throughout the year, teachers in small classes were on task far more than teachers in large classes. Teachers in small classes spent more time on instruction and actively teaching and less time on classroom management and discipline problems. Teachers in small classes also spent more time individualizing instruction, diagnosing student needs, providing help and monitoring progress (Achilles et al., 1995). The time-on-task difference translated into statistically significant differences in achievement and office referrals for discipline favoring the small class condition (Achilles et al., 1995). The researchers also suggest that the additional space available in small classrooms results in decreases in noise and crowding, thereby facilitating a greater variety in instructional methodologies and practices (Achilles et al., 1995).
Similar benefits of small classes have been found in other large scale class size studies such as Project SAGE in Wisconsin, studies in the Fairfax County, Virginia School District, and in Burke County, North Carolina (Achilles & Finn, 2002).

Educators are still trying to learn more about why students excel in small classes. However, experts agree that, when teachers have small classes, the following generalizations can be made (Cavanaugh as cited in Achilles & Finn, 2002):

1. Teachers employ a wider variety of instructional strategies, methods, and learning activities and are more effective with them.
2. Teacher attitudes are more positive.
3. Classroom management and discipline are better.
4. Students develop better human relations and have greater regard for others.
5. Students learn the basic skills better and master more subject matter content.
6. Students engage in more creative and divergent thinking processes.
7. Students learn how to function more effectively as members and leaders of groups of varying sizes and purposes.
8. Student attitudes and perceptions are more positive.

Slavin et al. (1994) have stated that class size reduction should be the standard against which all similarly expensive innovations should be judged. Full-day kindergarten is another expensive option for schools. Providing FD kindergarten in small classes is considered to be the ideal educational environment (Pianta et al., 2002).

However, for many districts this is not an option due to space or financial constraints and, for these districts the decision may become which option, FD kindergarten or small class size. Therefore, the results of research on the benefits of FD kindergarten must also be viewed against the benefits of small class size.
Developmentally Appropriate Practices

Concern has been raised in regard to how the additional time in a TLE program will be used. Some individuals are concerned that the additional time will result in curriculum pushdown and the use of developmentally inappropriate practices. In response to concerns regarding inappropriate academic curricula for kindergarten students, the National Association for the Education of Young Children (NAEYC) issued a revised set of guidelines referred to as developmentally appropriate practices (DAP) regarding children's learning and development (Bredekamp & Copple, 2002). These guidelines state that children learn through active exploration and interaction with adults, peers, and materials; activities should challenge students mentally and physically; materials should provide concrete examples and be relevant to the child's world (Bredekamp & Copple, 2002).

Guidelines for DAP provide a framework specifying what an early childhood classroom should look like and how it should operate. According to these guidelines, children should not be expected to sit for long periods of time or to engage in extensive paperwork. Periods of active play should be combined with periods of quiet activity and opportunities should be provided for students to construct their own knowledge through interactions with individuals and materials in their environment (Bredekamp & Copple, 2002). During the school day, periods should be set aside for play because play provides opportunities for students to explore, experiment, and manipulate objects and materials in their environment. Active involvement with materials and objects enables students to build on their prior experiences and knowledge base to construct new knowledge and enhances the development of representational thought (Bredekamp & Copple, 2002). Every child has an individual style of learning and timing of personal growth and development; therefore, curriculum must be designed to accommodate individual differences between children (Bredekamp & Copple, 2002).
Although endorsed by NAEYC, empirical support for academic benefits of DAP are weak and mixed. Of nine published studies, five report positive effects, three report mixed or no effects, and one reports negative effects (Van Horn & Ramey, 2003, p. 963). Research results indicate reduced levels of stress and anxiety in classrooms that adhere to DAP guidelines (Stipek et al., 1995, p. 210). Less support has been found regarding the positive effects of DAP on self-esteem or self-assessment of competence (Van Horn & Ramey, 2003).

Of interest are research results which indicate that classrooms which contain a higher percentage of low-SES children and/or Black children tend to be less involved in developmentally appropriate activities (centers, story reading) and more involved in developmentally inappropriate activities (waiting, workbooks, worksheets) (Burts et al., 1990). The researchers also found that males in developmentally inappropriate classrooms exhibited more stress than males in developmentally appropriate classrooms, and Blacks in developmentally inappropriate classrooms evidenced more stress than Whites during transitions, waiting, and teacher-directed whole group instruction. Whites in inappropriate classrooms evidenced more stress during group story reading (Burts et al., 1990).

No significant differences were found between and of the year standardized test scores of children in developmentally appropriate kindergartens as compared to children in developmentally inappropriate classrooms. The researchers concluded that the didactic teaching methods in developmentally inappropriate classrooms were no more effective in promoting achievement in kindergarten students than were the child-centered approaches used in developmentally appropriate classrooms (Burts et al., 1990).
Summary of Research Comparing Full-Day to Half-Day Kindergarten

Triggered in part by the Department of Education's 1983 report, *A Nation at Risk*, a trend developed in the United States to improve the kindergarten curriculum calling for a back-to-basics approach as a way to ensure the nation's continued dominance in world markets. Increased attention was directed toward the kindergarten year to ensure that students acquired the prerequisite skills needed for school success. Educators looked to research to determine the benefits of a FD kindergarten program as compared to a HD kindergarten program on students' academic, social, and behavioral outcomes.

Prior to 1990, research results on the benefits of FD kindergarten as compared to HD kindergarten were ambiguous largely due to weak and atheoretical design. While some studies indicated greater achievement of students who attended FD kindergarten (Adcock et al., 1987; Goodwin, 1989) other studies reported no academic difference between students who attended FD and HD programs (Evans & Marken, 1983; Savitz & Drucker, 1984).

Fusaro (1997) examined 23 studies published between 1974 and 1991 to determine any significant overall effects favoring FD programs. Twenty-one studies used achievement test results, and two studies used teacher ratings. Results indicated that children who attended a FD kindergarten program achieved at a higher level than did children who attended a HD kindergarten program (Fusaro, 1997). The effect size for FD programs was substantial, with participation in a FD program accounting for 59% to 62% of the difference in academic achievement between the two groups (Fusaro, 1997).

Fusaro concluded that children who attended an all-day every-day kindergarten achieved at higher levels than children who attended half-day kindergarten; therefore, full-day kindergarten appears to facilitate the achievement of children. Fusaro (1997) cautioned that few FD kindergarten studies have employed true experimental designs. Classes and students were not randomly selected nor were variables controlled (teacher...

Studies since 1990 have strived to use stronger experimental designs in an attempt to determine if enrollment in FD kindergarten results in statistically significant academic, social, and behavioral gains as compared to enrollment in HD kindergarten.

Effects of Full-Day Kindergarten on Academic Achievement

Holmes and McConnell (1990) examined the academic differences between 326 students enrolled in FD kindergarten compared to 311 students enrolled in HD kindergarten in a large metropolitan school system. Ten schools were randomly selected from among the list of schools chosen to go full-day and 10 schools were randomly selected from among the list of schools designated to remain half-day. The schools were evenly distributed between Title I and affluent areas. Students were included in the study by virtue of enrollment in the designated schools.

Data analyses, using six measures from the California Achievement Test (CAT) found no significant differences in visual recognition, sound recognition, vocabulary, and language expression between students enrolled in the FD program compared to students enrolled in the HD program. A significant difference was found in comprehension and mathematical concepts/applications between students enrolled in FD programs as compared to students enrolled in HD programs. Students in the HD programs performed significantly better on the comprehension measure than students in FD kindergarten.

According to the researchers, data analyses suggested that this apparent gain in favor of HD kindergarten was a result of girls in the HD program scoring significantly better than boys in the FD program rather than to kindergarten schedule. Data analyses also indicated that boys in FD kindergarten scored significantly better on measures of mathematical concepts/applications than boys in the HD program. This result was
attributed to the extra time provided in the FD program to the study of mathematics (Holmes & McConnell, 1996).

The researchers did not offer an explanation for the lack of any significant differences between FD and HD kindergarten on tests of visual recognition, sound recognition, vocabulary, and language expression. Additionally, as neither the context of the study nor classroom instructional methodologies/content of instruction described, it is difficult to speculate as to why differences were not found in literacy measures despite the additional time provided in a full-day program.

Koopmans (1991) evaluated the long-term effectiveness of FD kindergarten implemented in 11 schools in the Newark, New Jersey school district. Academic outcomes of students enrolled in the FD program were compared to academic outcomes of students enrolled in the HD program. A longitudinal assessment was made of the effects of kindergarten attendance for two cohorts, one that entered first grade in 1986, and one that started first grade in 1987. Using the Comprehensive Test of Basic Skills (CTBS), Koopmans compared the two cohorts to determine if any significant difference existed between scores on word attack, vocabulary, reading comprehension and math. Achievement scores for the two cohorts that attended the FD program were also compared to achievement scores of students who attended a HD kindergarten program.

Koopmans found that at the end of first grade, students who had attended the FD program had a significant advantage over students that had attended a traditional HD program. Students in Cohort 1 who attended the FD program performed significantly higher on measures of word attack, vocabulary, and reading comprehension than Cohort 1 students who had attended the HD program. This significant achievement difference was lost for students in Cohort 1 after the first grade. Cohort 2 students who attended the FD program also performed significantly higher than Cohort 2 students who had attended half-day kindergarten on tests of word attack, reading comprehension, and vocabulary. This significant difference for FD Cohort 2 students remained at the end of both first and
second grade (Koopman, 1991). These results are consistent with research results that
demonstrate that the differences in kindergarten programming become stronger during
the second year of implementation (Elicker & Mathur, 1997). Researchers have
suggested that the additional benefits derived by students in the second year of program
implementation are a result of teachers becoming more comfortable with the curriculum
and program; thereby enabling them to initiate more learning activities and provide more
close-to-one instruction to students (Elicker & Mathur, 1997, p. 477).

While the use of cohort groups in a study is not as strong as random assignment of
subjects, Koopman's findings are consistent with the growing body of research results
which have documented the positive impact of full-day kindergarten on academic
achievement, particularly for students from disadvantaged backgrounds.

Citing the enormous expense of funding public preschool and full-day
kindergarten, coupled with a lack of definitive data to support these initiatives, Ohio
initiated a statewide longitudinal study to investigate the effects of kindergarten schedule
(full-day, half-day, and alternate-day) and prior preschool attendance on students' academic
and behavioral success in kindergarten and later grades (Cryan et al., 1992). This study
was conducted in two phases; the first phase involved a retrospective analyses
of children who entered kindergarten in 27 Ohio school districts in the fall of 1982, 1983,
and 1984, and the second phase was a longitudinal study of students who entered
kindergarten in 27 Ohio school districts in 1986 (Cohort 1) and students who entered
kindergarten in 32 Ohio school districts in 1987 (Cohort 2) (Cryan et al., 1992).
Outcome data were gathered from the Metropolitan Readiness Test administered in
kindergarten and the Metropolitan Achievement Test administered in first grade. To
determine the similarities between classrooms, the researchers reviewed the courses of
study on file, lesson plans, and posted schedules (Cryan et al., 1992).
Data results for both the retrospective and longitudinal studies provided evidence relating participation in FD kindergarten to higher standardized test scores, at least through first grade and well into second grade (Cityas et al., 1992).

In a quasi-experimental study, Hough and Bryde (1996) found several advantages of enrollment in FD kindergarten as compared to enrollment in HD and/or extended-day programs. In a matched-pairs design, classes in six Springfield, Missouri schools that offered a FD program were compared to classes in seven Springfield, Missouri schools and one alternate school that offered HD or extended day programs. Classes were matched by geographic location, school size, student norm-referenced test data, and socioeconomic status. In total, 25 classes and 511 students were subjects of this study. Data were collected by means of classroom observations; video and audio-taped interviews of students, teachers, and parents; report cards of all students included in the sample; survey questionnaires administered to parents and teachers; and a norm-referenced achievement test.

Academically, Hough and Bryde found that students in FD kindergarten programs outperformed HD students on 8 of 9 measures of Language Arts (reading). Of the 13 criteria used to measure mathematics skills, only 2 were statistically significant favoring FD students (making predictions with numbers, and performing basic addition and subtraction tasks) (Hough & Bryde, 1996).

The researchers concluded that students attending a FD kindergarten experience a wider range of benefits than their HD or extended-day counterparts and that "the scientific evidence favors FD on virtually every dimension" (Hough & Bryde, 1996, p. 16).

Citing the increase in the number of FD kindergarten programs for children judged to be at-risk educationally, Nunnally (1996) studied the developmental and academic achievement levels of 9 at-risk students attending a FD kindergarten program compared to 10 at-risk children attending a HD kindergarten program to determine if the
outcomes justified the cost. This study was designed to be a pilot study for a "possible broader and more comprehensive longitudinal study following the children in both groups as they transitioned into the elementary grades and later schooling" (Nunnely, 1996, p. 5).

Both the FD and HD program were located in a low-income area in Indiana and received funding through Title I. The Early Childhood Environment Rating Scale (ECERS) was used to determine similarity of programs and curriculum. The Developmental Checklist of the Work Sampling System was administered to measure student achievement in seven domains: personal and social development, language and literacy, mathematical thinking, scientific thinking, social studies, the arts, and physical development. Analyses of data did not indicate any significant differences in assessments measures or in scores on the Work Sampling System as a result of enrollment in FD as compared to HD kindergarten. The researcher concluded that "when all else is essentially equal" there is no difference in measured outcomes for children participating in FD versus HD kindergarten (Nunnely, 1996).

The results of this study are difficult to generalize due to the small number of participants in each group. Statistically, it is difficult to show significant differences between cohorts when the population of the cohort is small in number.

Ellicker and Mathur (1997) conducted a 2 year evaluation of a pilot FD kindergarten program in a middle-class suburb of Wisconsin. In designing this study, the researchers attempted to address many of the design flaws of previous kindergarten studies. Children were randomly selected and assigned to the FD program. Full-day enrollment lists were obtained by random drawing from a pool of all incoming kindergarten students. Teachers were matched for professional training, experience, and teaching philosophy; however, they were not randomly assigned to program types.

Ellicker and Mathur compared the FD program to the traditional HD program. Both programs offered an activity-based, child-centered program, that followed the guidelines
for DAP recommended by the National Association for the Education of Young Children (NAEYC). Four full-day and eight half-day programs were observed over a 2-year period. Family demographics and background information were obtained through parental survey prior to the start of the study to ascertain similarities between cohorts.

The researchers analyzed kindergarten report cards to determine differences in achievement between FD as compared to HD kindergarten. Additionally, kindergarten teachers were asked to rate each child’s readiness for first grade (Ellicker & Mathur, 1997). Academic outcomes at the end of the kindergarten year indicated slightly greater progress in kindergarten and higher levels of first grade readiness among children in the FD program (Ellicker & Mathur, 1997). The use of report cards to document differences in academic achievement is a weakness in this research design. Grades on kindergarten report cards are subjective at best. The marks are generally not reflective of test grades, rather they are a teacher’s judgment regarding how the student is doing. The accuracy of teachers’ perceptions regarding first grade readiness has been validated by Gullo (2000); therefore, the results in this area have more validity.

The Irving Texas School District piloted full-day kindergarten in the 1992-1996 school year. District leadership believed that FD kindergarten, in combination with other early intervention strategies would contribute to stronger performance on state and national assessments. District leadership was particularly interested in determining whether providing FD kindergarten would assist students to reach levels of oral language development and literacy necessary for first grade success. Additionally, district leaders sought to determine if FD kindergarten would decrease or eliminate the use of pre-first grade or any form of grade retention. To answer these questions, Wang and Johnstone (1999) analyzed data from the second year of the FD kindergarten program to investigate differences in oral language development, emergent literacy skills, mathematical reasoning/concepts, and behavior for students enrolled in FD as compared to HD kindergarten. A stratified random sampling strategy was used to control for school and
geographical effects. Pre and post measures of oral language development (IPT Oral Language Assessment), mathematics concepts and reasoning (Woodcock-McGrew Werder Mini-Battery of Achievement), literacy skills (An Observation Survey of Early Literacy Achievement) and behavior (social/emotional development checklist on district report card) were obtained (Wang & Johnstone, 1999, p. 28). Data were compiled for both English-speaking and Spanish-speaking classes.

Results of statistical analyses for the English-speaking FD versus HD classes indicate statistically significant differences in favor of FD kindergarten in development of oral language, early mathematics concepts, and emergent literacy skills. Analyses of data for Spanish-speaking classes did not find any statistically significant differences between students enrolled in FD as compared to HD classes. A review of pre-post test differences indicates that Spanish-speaking students enrolled in FD programs made greater gains than HD students in oral language, mathematics concepts, and emergent literacy. The researchers posited that the lack of statistically significant findings may be the result of the smaller sample size included in the Spanish-speaking classes (Wang & Johnstone, 1999, p. 32).

Based on the results of this study, the Irving, Texas school district expanded their FD kindergarten program to all schools in the school district. Of concern in this study is the fact that each of the schools included in the study designed its own FD kindergarten program. While they all subscribed to the same common objectives (improved oral language development, improved emergent reading skills, enhanced acquisition of early mathematics concepts, and improved appropriate behaviors) no attempt was made in this study to document the time spent on each activity or the specific skills targeted. Consequently, the results obtained may be a reflection of the curriculum rather than the amount of extra time provided in the full-day program. Basing decisions on data collected during the second year of program implementation provides a firmer foundation for making district policy decisions as researchers have found that gains are more
pronounced during the second year of program implementation (Ellicker & Mathur, 1997; Keopmans, 1991).

Gullo (2000) examined the effects of full-day and half-day kindergarten enrollment on 974 second graders' academic outcomes. Using data from the Iowa Test of Basic Skills, Gullo found that students who had attended FD programs scored significantly higher in math and reading than students who attended HD programs. Data also indicated that children who had attended FD programs had fewer absences and less retention in grade than students who attended HD programs (Gullo, 2000).

Hildebrand (2001) collected comparative data within one Nebraska school district applying a common kindergarten curriculum to study the relative effects of three different kindergartens schedules (full-day, alternate-day, and half-day) on academic achievement. Three of the seven elementary schools in the school district participated in the study. Using a quasi-experimental design, Hildebrand statistically controlled for preexisting differences among groups of students in regard to age and achievement test scores. Students were administered individual norm-referenced tests of reading (The Test of Early Reading Ability-2) and math (Test of Early Mathematics Ability). Additionally, the Concept of Writing, an informal assessment tool was administered to all kindergarten children to survey children's ability to construct meaning using alphabetic symbols. Writing samples were rated using a nine-point holistic scoring guide (Hildebrand, 2001, p. 2). Teachers' theoretical orientation to reading instruction was identified using the DeFord Theoretical Orientation to Reading Profile (TORP) and use of DAP was assessed through classroom observation.

Analyses of data did not indicate any significant differences for math and writing between students enrolled in full-day, half-day, or alternate day kindergarten. Significant differences in reading were found between FD and HD programs. No significant differences in reading were found between the FD and alternate-day or between alternate day and HD programs. A review of the results of the TORP indicated that the teachers in
the alternate-day program favored a whole language approach, while the students in the FD and HD programs favored a skills approach (Hildebrand, 2001). The results of this survey must be taken into account when evaluating the reading results. The difference in reading scores, as a function of instruction (whole language vs. phonics), needs to be addressed before the results of this study can be used to show the benefits of FD versus HD versus alternate-day kindergarten. Hildebrand suggested that the increases in reading achievement seen in FD kindergarten children may be a result of additional opportunities to engage in experiences with alphabetic text. While both intuitively and based on research findings (National Reading Panel, 2000) this explanation makes sense, no attempt was made in this study to observe classroom instruction in order to quantify differences in literacy instruction in the various program alternatives.

In Montgomery County, Maryland, school district leaders implemented a number of initiatives in 34 of the 125 elementary classrooms in the County to improve student outcomes. These initiatives included increasing the number of classes of FD kindergarten programs and decreasing the number of students in each class (student-staff ratio of 15:1) (Bridges-Cline, Hofler-Riddick, & Gross, 2002). The schools selected for participation in the study included the neediest schools in the County in terms of percentage of enrollment of minority students, students of low socioeconomic status, and/or students learning English as a second language. The researchers compared literacy development in FD kindergarten classrooms to HD classrooms. The researchers also compared literacy development in FD classrooms with reduced class size and FD classrooms that did not have reduced class size.

Analyses of student progress indicated consistent evidence of significant benefits of the FD, reduced class-size kindergarten program for student learning. Controlling for differences in entry skills of students, kindergarten students in FD programs made significantly greater gains in the acquisition of foundational literacy skills than students in HD programs (Bridges-Cline et al., 2002, p. 23). Results also indicated that
participation in a FD program is essential for students who transitioned from Head Start programs in order to maintain and develop the literacy gains made in Head Start (Bridges-Cline et al., 2002, p. 18). The researchers concluded that a FD, reduced class-size program was essential for students judged to be at-risk academically to begin to close the gap in early literacy skills (Bridges-Cline et al., 2002, p. 24). The benefits of FD and reduced class-size were greatest for students from lower socioeconomic status and/or students who are learning English as a second language (Bridges-Cline et al., 2002).

Implementing two initiatives at the same time makes it difficult to determine which initiative, FD kindergarten or reduced class size, had the greatest impact on student literacy achievement. Previous studies have demonstrated the benefits of both full-day kindergarten and small class size when implemented as the sole initiative. Consequently, educational leaders in Montgomery County may require further study to determine which initiative had a greater impact particularly when faced with financial constraints.

A study of 17,600 Philadelphia schoolchildren suggested that students who attended FD kindergarten programs were more than twice as likely as children without any kindergarten experience and 26% more likely than graduates of HD programs, to make it to third and fourth grade without being retained. (Viadero, 2002). Students enrolled in FD kindergarten scored higher on standardized reading and math tests, received better grades, and had better attendance than students enrolled in HD kindergarten. This study did not examine how the teachers utilized the additional time provided within a FD program.

Social and Behavioral Effects of Full-Day Kindergarten

In the Ohio Longitudinal Study, Cryan et al. (1992) administered the Hanemann Elementary School Behavior Rating Scale to all kindergarten students. Data analyses indicate that behaviorally, there was a clear relationship between kindergarten schedule and children’s classroom behavior. Analysis of variance for each cohort (Cohort 1 and
Cohort 2) showed significant differences related to schedule for originality, independent learning, involvement in classroom activities, productivity with peers, intellectual dependency, failure/anxiety, and approach to teacher with improved student performance noted for students enrolled in FD programs (Cryan et al., 1992, p. 193). The results also indicated that students attending the FD kindergarten program exhibited more positive behavior than did the pupils in the HD kindergarten programs (Cryan et al., 1992, p. 199). The researchers found that all positive behaviors of FD kindergarten students increased while all negative behaviors either had no change or decreased. Full-day kindergarten students were rated as exhibiting more positive behavior than the students in half-day kindergarten programs (Cryan et al., 1992). Data from this study would support the improvement in social behaviors as a result of enrollment in full-day kindergarten.


In Hildebrand's (2001) study of the relative effects of three different kindergarten schedules (full-day, alternate-day, and half-day), the Hahnemann Elementary School Behavior Rating Scale (HESB) was used to obtain teachers' perceptions of children's social competence. Analyses of HESB results indicated that children attending the HD program scored significantly higher on four factors considered to facilitate learning (originality, independent learning, involvement, and productive with peers) while alternate-day students scored significantly lower on all four of these factors. Significant differences were found between groups on four factors considered to show a student's ability to cope with academic expectations (blaming, approach to teacher, inattention, and academic expectation). Students attending the HD program had higher positive scores on approaches to teacher and also were rated by teachers as demonstrating the least amount of inattentive classroom behavior. Teachers also rated students in the HD program higher
on academic achievement. These results contradict findings from other kindergarten research which demonstrated improved social interactions and behavior in full-day kindergarten classes (Cryan et al., 1992; Wang & Johnstone, 1999).

Finn and Pannozzo (2004), using data from the Early Childhood Longitudinal Study (ECLS-K), compared student behavior in full-day kindergarten to that of half-day kindergarten. Teachers rated half-day classes as better behaved than full-day classes. Afternoon (half-day) classes were rated at better behaved than morning (half-day) classes (Finn & Pannozzo, 2004). The researchers pointed out “The common aspect of these findings is that morning classes, in full-day and morning-only kindergarten, were rated the poorest. The time of day undoubtedly affects students’ behavior as young children might be expected to be more active in the morning and to exhibit more misbehavior” (Finn & Pannozzo, 2004, p. 85). Additionally, teachers’ ratings of classes that start in the morning and continue to the afternoon may be negatively impacted by teacher fatigue (Finn & Pannozzo, 2004).

Classroom Processes and Structures

In a study conducted in Northeast Arkansas, researchers examined 10 kindergarten teachers’ use of instructional time to determine its relationship to student learning. Data were collected through classroom observations of student time-on-task and teacher-student interactions at 3-minute intervals over the course of 2 half-hour sessions with each teacher. Results found that out of 200 observational intervals, large-group activities occurred 157 times and small-group activities occurred 34 times. Researchers recorded 46 instances of unoccupied (off-task) children and 71 instances of time spent making transitions. The researchers found that instances of being unoccupied (off-task) were more than twice as likely during small-group instruction than during large-group instruction. They noted that, while all teachers utilized large-group instruction, two teachers in this study did not engage in small-group activities during the observation sessions. The researchers concluded that DAP practices were not commonplace in
kindergarten programs. Teacher-student interactions, which are encouraged in DAP, were only observed 2.5% of the time. Additionally, small-group instruction, which is believed to be conducive to the needs of young children, was only observed 20% of the time (Hardy et al., 1993). Generalizations of research results to larger populations are difficult due to the limited amount of time each teacher was observed (60 minutes) and the restricted geographical area.

Hough and Bryde (1996, p.3) found that while kindergarten curricula are similar across classrooms, instructional practices vary in significant and important ways. Students enrolled in FD programs received more small-group and individual instruction than did students enrolled in HD programs and engaged in a greater variety of activities including outside activities. Attendance was more regular and parental satisfaction was higher for students enrolled in FD kindergarten. The researchers found that fatigue was not a significant factor in FD kindergarten and that students in FD kindergarten engaged in a significantly greater number of child-to-child social interactions in FD programs (Hough & Bryde, 1996). The quality of these social interactions was not ascertained in this study, only the quantity of these social interactions.

Elicker and Mathur (1997) compared classroom processes in the FD kindergarten program to classroom processes in the traditional HD kindergarten program. Between 4 and 5 days of observations were completed in each classroom over a two-year period. Classroom observations were conducted both in the morning and afternoon and at various times during the school year using the Early Childhood Classroom Observation System (ECCOS). Children's participation in teacher-directed or child-initiated learning activities, level of engagement in activities, and children's affect were documented. Participating children were observed for one-minute intervals, on a random rotating schedule (Elicker & Mathur, 1997, p. 466). Because extensive observation of each student was not feasible, the unit of analysis was the observation interval (Elicker & Mathur, 1997, p. 466). The researchers used this data to "construct a profile of typical
child activity throughout the kindergarten day for each classroom, using data generated by all children” (Elicker & Mathur, 1997, p. 456).

Data analyses indicated that teacher-directed, large-group active and large-group listening activities consumed the greatest amount of time in both types of classrooms (Elicker & Mathur, 1997). Teacher-directed small-group activities comprised a small amount of the typical kindergarten day. Child-initiated activities accounted for more time in FD classrooms than in other program arrangements in both absolute and proportional terms (Elicker & Mathur, 1997).

A comparison of classroom activities in Year 1 and Year 2 of the study indicated stronger differences between FD and HD programs during Year 2. Systematic observations of children's classroom activities revealed that the FD program included more child-initiated learning activity, more teacher-directed individual activity, higher levels of active engagement, and higher levels of positive affect, in both absolute and proportional terms. Students in second-year implemented classrooms were initiating more learning activities and receiving more 1:1 instruction than students in first year implemented programs.

Full-day kindergarten was evaluated in a suburban Kansas City school district. Children were selected for inclusion in the study by virtue of being enrolled in the school targeted for study. Kindergarten readiness screening was administered to all students enrolled in four full-day and eight half-day programs prior to the start of the kindergarten year. No significant difference was found in readiness levels of students enrolled in FD versus HD programs (Martinez & Snider, 2001). Results of the study indicated that children in the FD program spent more time engaged in student-initiated activities, received more one-to-one instruction, and spent less time in teacher-directed group activities than did students in the HD program. Additionally, the researchers found that FD teachers spent more time helping children complete challenging tasks, developing friendships, resolving conflicts, and understanding other points of view as compared to
teachers in HD programs (Martinez & Snider, 2001). These results validated results found by other researchers who compared the results of FD and HD kindergarten (Flicker & Mathur, 1997; Hough & Bryde, 1996).

In a review of the effects of full-day versus half-day kindergarten, researchers reviewed and analyzed data from Indiana and national studies (Plucker et al., 2004). Data obtained from the eight Indiana school districts, as well as national data bank, found that there are no negative outcomes associated with FD kindergarten. The research also found that time use in FD kindergarten programs is different both quantitatively and qualitatively from how time is used in HD programs (Plucker et al., 2004, p. vii). Enrollment in FD kindergarten was related to gains in academic achievement, improved social interactions, improved behavior, and decreases in grade retention and special education referrals. The researchers also found that disadvantaged students in FD programs experience greater academic benefit than students from other socio-economic status levels (Plucker et al., 2004).

The researchers found that the additional instructional time in FD programs resulted in greater use of child-initiated activities and certain types of reading skills and grouping strategies were more prevalent in FD programs than in HD programs. These strategies included achievement-level groupings, peer tutoring, and mixed-ability groupings. The researchers found that students in FD programs were more likely than students in HD programs to spend time on literacy skills each day. These skills included letter recognition, letter-sound match, conventions of print, vocabulary, making predictions based on text, using context clues for comprehension, rhyming words, reading aloud, reading multi-syllable words, and alphabetizing (Plucker et al., 2004, p. 26).
Impact of Prior Preschool/Childcare Experiences

Children who attended preschool or day care during the year prior to kindergarten scored approximately 10 percentage points higher than students who had not had these experiences (Cryan et al., 1992). Children who attended preschool prior to kindergarten experienced greater subsequent success in elementary school than those who did not attend any preschool program (Cryan et al., 1992).

Impact of Age and Gender on Kindergarten

In the Ohio Longitudinal Study, the researchers found significant age and gender effects. Results indicated that it is risky to be a summer child. Being a summer child was related to retention and referrals (Cryan et al., 1992).

Parent and Teacher Responses to Full-Day Kindergarten

Parents and teachers overwhelmingly favor FD kindergarten programs over H/D programs. Both parents and teachers cited improved learning and school socialization skills (Hough & Bryde, 1996, p. 3).

In their pilot study of FD as compared to H/D kindergarten, Elicker and Mathur used open-ended questions to obtain teacher perceptions of the advantages and disadvantages of FD versus H/D kindergarten. Teachers were also asked for suggestions regarding ways to improve the FD and HD programs (Elicker & Mathur, 1997, p. 468). Teachers interviewed stated that FD kindergarten provides opportunities to be more flexible, to devote more time for child-initiated activities, to address concepts in more depth and in a more creative manner. The teachers reported feeling less stress and frustration and being able to work with children and their parents on a one-to-one basis (Elicker & Mathur, 1997). The teachers reported that they believed that the transition to first grade was easier for students who had participated in the FD program.
Elicker and Mathur also surveyed the parents in the fall and spring to obtain their perceptions of their child’s readiness for first grade, satisfaction with their child’s kindergarten schedule, and problems faced by their child during the school year. The parents of students enrolled in the FD program reported that FD kindergarten provided more opportunities for children to explore and learn and allowed the teacher to get to know each child better, in a “less hurried atmosphere” (Elicker & Mathur, 1997, p. 474). Parents of students enrolled in the HD program reported that they were satisfied with the quality of the program; however, they did not feel that there was enough time in the HD program to meet their child’s needs. The parents also stated that the HD program presented child-care problems. When asked in questionnaires to select their kindergarten program of choice at the end of the first school year, 100% of FD parents and 48% of HD parents selected the FD program. At the end of the second year, 100% of the FD parents and 72% of the HD parents selected the FD program (Elicker & Mathur, 1997, p. 476).

National Studies on Full-Day Kindergarten

In an effort to improve the quality of the data available regarding early childhood education, NCES initiated the Early Childhood Longitudinal Study-Kindergarten Class of 1998-1999 (ECLS-K). According to the NCES, the ongoing nature of the study, as well as its national scope and large sample size, controls for many of the limitations of previous kindergarten studies (Walston & West, 2004). The focus of this study was to compare differences in instructional practices and curriculum focus in FD versus HD kindergarten at the national level using data from schools, teachers, parents, and kindergarten children. Students were not randomly assigned to classes; therefore the researchers caution against drawing causal relationships from the results of this longitudinal survey.

In this longitudinal study, a nationally representative sample of 22,000 kindergartners (95% first time kindergartners) representing diverse racial, ethnic, and
socio-economic status were followed through fifth grade. All kindergarten teachers in the sampled schools were selected to participate (3000 teachers). Approximately 1,200 public (85%) and private schools (15%) offering kindergarten programs (Full-day 55%, half-day 45%) were selected to participate in the ECLS-K. Early childhood programs that offer kindergarten in addition to programs for preschoolers were also selected to participate.

Results of this national study indicate:

1. Teachers in FD kindergarten classes organize for instruction in much the same way as teachers in HD kindergarten. On the average, FD classes spend more time each day than HD classes on teacher-directed whole class, small-group, individual activities and child-initiated activities. When total amount of time is taken into account, the percent of total class time spent in each activity is the same (Walston & West, 2004, p. xviii)

2. Mixed level groupings are the most common grouping type used in both FD and HD kindergarten classes. Full-day classes are more likely than half-day classes to use achievement groups at least once a week for reading instruction and math instruction (Walston & West, 2004, p. xviii)

3. Both FD and HD classes have reading and language arts activities every day. Full-day classes are more likely to spend time each day on other subjects such as math, social studies, and science than half-day classes (Walston & West, 2004, p. xviii)

4. All children enrolled in kindergarten make gains in reading and math. The children enrolled in FD kindergarten made greater gains in reading, language arts, and math over the course of the kindergarten year compared to students enrolled in HD kindergarten.

5. Children in FD classes make greater gains in both reading and mathematics when compared to children in HD classes even after adjusting for gain
score differences associated with race and poverty status Walston and West (2004, p. xxi)

6. All groups make gains during the year. White and Asian children on average scored higher than Black and Hispanic children, both in the Fall and Spring of kindergarten.

7. Children from economically disadvantaged households made gains during their kindergarten year but tended to both start and end the year behind children from more economically advantaged households (Walston & West, 2004, p. 45). Children from households with incomes below the poverty threshold made slightly smaller gains compared to those with incomes at or above this thresholds (Walston & West, 2004, p. 58).

8. Reading and math knowledge of incoming kindergarten students differed by level of mother's education. Children whose mothers had higher levels of education performed better on reading and math pretests (Walston & West, 2004).

9. Children in Head Start programs demonstrated slightly higher cognitive knowledge and skills, but they were also more likely to exhibit problem behaviors (as measured by how often they argue and fight with each other) (Walston & West, 2004).

10. Class size was a small but significant main effect indicating that children in large classes made smaller gains in reading compared to those in medium size classes. Children in classes with between 18 and 24 students made gain scores on the average .54 score points larger than those in classes with 25 or more children (Walston & West, 2004, p. 56).

11. Small class size did not mitigate the difference in gains found between children in HD and FD kindergarten programs (Walston & West, 2004, p. xxi).
12. Presence of an aide in a program was not associated with gains in reading for White children enrolled in either HD or FD programs. Black children in FD classes with an aide made greater reading gains compared to Black children in FD classes without an aide (Walston & West, 2004, p. xxi).

Summary

Research results indicate that all students derive benefit from enrollment in a full-day kindergarten program; however, regardless of the curriculum, low-SES students and/or students judged to be at-risk evidenced greater gains than middle- or high SES students in literacy, math, general learning skills, and social skills (Finn, 2000). The long-term benefits of full-day kindergarten are mixed (Finn & Pannozzo, 2004).

Researchers have found that full-day programs provide opportunities for students to be more actively engaged (Elicker & Mathur, 1997) and enable teachers to extend learning experiences, develop more positive and nurturing relationships with students, and maintain better communication with parents (Elicker & Mathur, 1997; Hough & Bryde, 1996). Full-day schedules allow for more appropriate challenges for students at all developmental levels and enable teachers to use more developmentally appropriate practices in their classrooms (Elicker & Mathur, 1997). Children in full-day programs demonstrate more positive behavior in the areas of originality, independence learning, and involvement in classroom activities (Cryan et al. 1992) and have fewer grade retentions (Cryan et al., 1992; Viadero, 2002).

Of paramount important to district leaders and educators is the fact that no detrimental effects of developmentally appropriate full-day kindergarten were found when compared to half-day kindergarten (Elicker & Mathur, 1997; Martinez & Snider, 2001).
Chapter 3 will describe the design of the study, the methodology, and the procedures used in the study. It will also discuss the population, instruments, data collection procedures, and statistical methods employed in this study.
CHAPTER 3

METHODOLOGY

This chapter presents the design of the study, the methodology, and the procedures that will be used in the study, such as the population of the study, data collection, data analysis, and comparisons to be made. The quantitative and qualitative components of this dissertation will also be discussed.

Research Design

A pilot study was conducted during the 2003-2004 school year at the request of district leadership. Although the pilot study was conducted in 2003-2004, the year prior to the present study (2004-2005), the pilot study and the data obtained in it are an important part of the present study. The pilot study is considered as the baseline and the benchmark against which the new data were compared. The procedures and design of the 2004-2005 study built upon the pilot study and its conclusions.

This action-research, program evaluation will form the basis for district level improvements, decisions, and future planning. A post-test only design with nonequivalent groups (research design #10) was used (Campbell & Stanley, 1965). Or, using a more contemporary classification, a cross-sectional, descriptive study (Type 2) was used (Johnson, 2001).

Demographic data (gender, age, number of years of preschool, ethnicity, and eligibility for free milk) were collected to demonstrate similarities between groups: pilot, half-day (2003-2004) and current, full-day (2004-2005). These data were aggregated and stripped of all identifiers.

This quasi-experimental study employed three methodologies: classroom observations (quantitative), Developmental Reading Assessment (quantitative), analysis of teachers’ perceptions regarding the advantages and disadvantages of full-day
kindergartens as compared to half-day kindergarten (qualitative). Seven major research questions were addressed in this study:

1. What are the differences in instructional methodology (teacher-directed versus child-initiated) in full-day versus half-day kindergarten?

2. How do the following structures differ in full-day as compared to half-day kindergarten (large-group, small-group, individual instruction, learning centers, cooperative learning, individual-creative activities, free play, snack, transitions)?

3. What are the differences in amount and content of instruction (reading, writing, math, science, social studies), in both absolute and proportional terms, in a full-day versus half-day kindergarten?

4. How do teacher-student communicative exchanges differ in full-day as compared to half-day kindergarten (procedural, social/behavioral, instructional)?

5. How does teacher-parent contact differ in full-day versus half-day kindergarten?

6. What are teachers' perception of the advantages and disadvantages of full-day as compared to half-day kindergarten?

7. What are the gains, if any, in reading achievement of students enrolled in full-day as compared to half-day kindergarten?

Participants

Five kindergarten teachers participated in this study. All five teachers were considered “Highly Qualified” according to New Jersey Standards (NJDOE, 2004) and were assigned to teach in the district’s five kindergarten classrooms. Four of the five teachers had previously taught in the half-day kindergarten program. Teacher 1 was employed for 3 years by the district as the lead teacher in the half-day kindergarten program. Prior to assuming the role of lead teacher, this teacher worked for 2 years as an Instructional Assistant in the half-day kindergarten program.
Teachers 2 and 3 were employed as Instructional Assistants in the half-day kindergarten program. One was employed for 2 years and the other was employed for 1 year in the capacity of Instructional Assistant.

Teacher 4 was employed by the district as an Instructional Assistant in a second-grade classroom in the K-3 school. While employed as an Instructional Assistant in the second grade, this teacher was frequently called upon to substitute in the half-day kindergarten program.

Teacher 5 was hired at the beginning of the 2004-2005 school year. This teacher had previously taught in a half-day transitional kindergarten class in an upper-middle-class, affluent school district.

Teachers were recruited for the present study by the research assistant. The research assistant read a prepared verbal script (see Appendix A) which explained the purpose of the study, that participation was strictly voluntary, and that confidentiality would be maintained. The research assistant provided each teacher participating in the study with an Informed Consent Notice and made herself available to respond to any questions.

The Informed Consent Notice approved by the Seton Hall University Institutional Review Board (IRB) stated that teacher participation in the study was completely voluntary (see Appendix B).

Data were obtained from all students enrolled in the district’s full-day kindergarten program through a review of records routinely maintained by the district. Students were assigned to classes to achieve age and gender balance; thus, they were not assigned at random. Prior to assigning students to classes, the students are first divided by gender and then by birthdays within gender groupings. Students were assigned in turn to each of the five classrooms starting with class one and ending with class 5. This process was followed until all of the students had been placed in a class.
The district does not screen incoming kindergarten students; therefore, academic achievement and social development were not factors considered in class placement. Cohort groups in the pilot (2003-2004) and present study (2004-2005), as well as cohort groups from two preceding school years (2001-2002, 2002-2003) were compared by total number of students, gender, ethnicity, age, and eligibility for free milk to demonstrate similarities between cohort groups.

Data on all kindergarten students enrolled in the districts’ full-day program were collected through a review of documents and records that are routinely maintained by the district. Data was aggregated and stripped of all identifiers.

**Instruments**

Data collection instruments used in the pilot study were used in the present study: The Early Childhood classroom Observation System or ECCOS (Elicker & Mathur, 1997), Teacher-Parent Interaction Log, minutes of grade-level team meetings, review of records, and Developmental Reading Assessment (DRA) (Beaver, 2001).

The ECCOS was used to record data on classroom structures, instructional methodologies, and teacher-student communicative exchanges. The ECCOS (see Appendix C) was developed and validated by Elicker and Mathur (1997) to document program processes in a newly-implemented full-day kindergarten program. Bronfenbrenner’s ecological systems framework, as well as program evaluation perspectives identified by Patton, informed the design of ECCOS (Elicker & Mathur, 1997). Elicker and Mathur designed ECCOS to obtain data on children’s experiences within a program (microsystem) (Elicker & Mathur, 1997, p. 462).

In both the pilot study and the present study, ECCOS was modified to focus attention on program processes rather than an individual student. Using ECCOS, data were collected on the use of various classroom processes and structures (large-group instruction, small-group instruction, individual instruction, learning centers, cooperative
warning, individual-creative activities, free-play, snack, transitions), content of instruction (reading, writing, math, science, social studies), and teacher-student interactions (instructional, social/behavioral, procedural).

A stop watch was used to measure one minute intervals.

A Teacher-Parent Interaction Log (see Appendix D), designed by district leadership, was maintained by each classroom teacher in March, 2005. This log documented the form (telephone, scheduled conference, unscheduled conference, newsletter) and content (academic, social, and/or behavioral) of teacher-parent interactions.

Teachers' perceptions of the advantage(s) and disadvantage(s) of full-day as compared to half-day kindergarten were documented in the written records (minutes) of regularly scheduled grade-level team meetings.

Demographic information (age, gender, ethnicity, number of years of preschool, eligibility for free milk) was aggregated from school records.

The DRA (Beaver, 2001) was used to assess reading achievement. The DRA is an individually administered diagnostic instrument to determine a student's independent reading level. It is designed to determine the extent to which a child is progressing as a reader. The DRA includes leveled books that are organized according to a gradient of difficulty. These books start with texts appropriate for students at a pre-reading stage, progressing to texts appropriate for third grade and above. The DRA also includes an observation scoring guide (see Appendix E), a story overview, and a DRA continuum.

The DRA enables classroom teachers to assess reading ability, document progress, and tailor teaching methods to drive effective reading instruction. The DRA is series of leveled books and recording sheets designed to allow teachers to determine reading accuracy, fluency, and comprehension levels.

A reliability study was conducted to examine inter-rater reliability of teachers using the assessment and internal consistency of the DRA instrument (Williams, 1999). Results
indicate that inter-rater reliability between two raters was strong (0.80). Inter-rater reliability among three raters was not as strong (0.74). Inter-rater reliability was calculated using Rasch rating scale analysis, 4-facet model, by Wright and Stone (as cited in Williams, 1999). Internal consistency was found to be strong for the five rating-scale items across all three raters (Cronbach’s alpha = 0.97).

To determine construct validity, individual scores on the DRA for a second grade population were correlated with the students’ scores from fall of third grade on the Iowa Test of Basic Skills (ITBS) Subscales: vocabulary, Reading Comprehension, and Total Reading. All correlations were significant at the 0.01 level (2-tailed) using Spearman’s Rho rank order correlation. However, the highest and most meaningful correlation was with Total Reading ($r=0.71, p<.01$) (as cited in Williams, 1999).

Further support for the validity of the DRA and the reliability of its use is provided by Biggean and Grainger who noted that the DRA is an authentic performance based assessment (as cited in Williams, 1999).

Procedure

Observation of classroom structures (large-group instruction, small-group instruction, individual instruction, learning centers, cooperative learning, individual-creative activities, free play, snack), instructional methodologies (teacher-directed, child-initiated), teacher-student communicative exchanges (procedural, social-behavioral, instructional), and transitions were recorded in each kindergarten classroom using the ECCOS (Elicker & Mathur, 1997). A time sampling procedure, using a stop watch, was followed. Data were collected in each classroom at 1 minute timed intervals for a total of 590 minutes in March 2005. Each 1-minute interval consisted of 40 seconds of observation followed by 20 seconds of data recording. Observations occurred throughout the school day. No observation occurred during special classes (art, music, library, Spanish, and physical education) or during lunch/recess.
A research assistant conducted all classroom observations in the present study. Classroom observations in the pilot study were conducted by the researcher. To ensure consistency in observations between observers, the researcher trained the research assistant on the observation instrument. The researcher reviewed and provided examples of each category contained on the ECCOS. Inter-observer agreement was established in a series of three 20 minute videotaped classroom observations prior to data collection. A level of at least 80% exact agreement ($n$ agreements + $n$ disagreements) was obtained between the researcher and the research assistant.

The researcher met with the five kindergarten teachers in March, 2005 to review and provide examples of each of the categories contained on the Teacher-Parent Interaction Log. Each teacher recorded all of her interactions with the parents of her students during March, 2005.

Permanent records and DRA scores of students enrolled in the district's full-day kindergarten program were aggregated and stripped of all identifiers.

Data Analysis

The number of observations in each category of the ECCOS was totaled and recorded as a percentage of total observations. Each activity percentage was converted to minutes per day, both absolute and proportional, based on total observed class time to obtain an accurate profile of classroom activity. Data obtained from the present study of full-day kindergarten were compared to data obtained from the pilot study of half-day kindergarten. Classroom variables, identified on the ECCOS were analyzed to answer research questions 1, 2, 3, and 4.

Each Parent-Teacher Interaction Log was analyzed as to content and form of contact. Totals were obtained in each category and compared to results obtained in the pilot study (2003-2004). Data obtained from the Parent-Teacher interaction Log were used to answer research question number 5.
Teacher responses to question/topics discussed during monthly grade-level team meetings were recorded in meeting minutes absent teacher names. Meeting minutes were subjected to content analysis to identify patterns and themes. Patterns and themes identified in the present study were compared to patterns and themes identified in the pilot study. The results of content analysis were used to answer research question number 6.

Students in the pilot study (2003-2004) were designated as Cohort 1 and students in the present study (2004-2005) were designated as Cohort 2. The DRA results obtained by students in Cohort 1 were compared to DRA results obtained from students in Cohort 2. An independent samples t test was used to determine the presence of any statistically significant differences in reading gains for students enrolled in full-day kindergarten (Cohort 2) as compared to half-day kindergarten (Cohort 1). The results of the t test were used to answer research question number 7.

A simple regression analysis was conducted to determine if DRA scores could be predicted from the number of years a student attended preschool prior to entering kindergarten.

Context

During the Pilot Study of half-day kindergarten (2003-2004), 2 AM (8:40-11:55) and 2 PM (12:00-3:15) kindergarten classes were held daily with student placement in either the AM or PM sessions by parental request. Once a list of all AM and PM students was generated, students were sorted into gender groups and then age groups within gender. Students were placed in turn from the list into classes to obtain age and gender balance.

The kindergarten classrooms were located adjacent to each other and were connected internally by an 8x90 foot long room that the teachers shared for computer instruction and materials preparation. One classroom contained approximately 1200
square feet of instructional space, the other classroom contained approximately 950
square feet of instructional space.

The kindergarten classrooms in the pilot study contained both round and
rectangular tables for student seat work. Each classroom had a central rug area for large
group instruction and activity centers located on the perimeter of the room for free
play/exploration (kitchen, “book nook,” science center, block area, math area, dress-up
area, writing center). The classrooms shared a common bathroom located in one of the
kindergarten classrooms.

In the present study (2004-2005), the five full-day kindergarten classrooms were
located in a new wing of the school building. The classrooms each contained 1000
square feet of instructional space with separate coat cubbies and bathroom facilities
located within each classroom.

Classroom furniture arrangement and center areas mirror classroom layout in the
pilot study (2001-2004). Rectangular tables were located in one section of the room. Each
classroom had a central rug area and activity centers located on the perimeter of the room
for free play/exploration (kitchen, “book nook,” science center, block area, math area,
dress-up area, writing center).

In the new kindergarten/preschool wing, a large central hallway, with high vaulted
ceilings, fans out between the classrooms to accommodate multi-class projects. The
kindergarten students have a separate building entrance and playground facility.

Chapter 4 presents the analyses of the data collected using procedures and methods
discussed in this chapter.
CHAPTER 4
PRESENTATION AND ANALYSIS OF DATA

This chapter reviews the purpose of the study, provides a summary of the pilot study (2003-2004), methods used in the present study (2004-2005), demographic data to demonstrate similarities between cohorts, and presents analyses of data collected in the study relative to each of the seven research questions.

Purpose of the Study

Additions to the District's K-3 facility (2002-2004) made it possible to offer full-day (FD) kindergarten to all students in the 2004-2005 school year. Cognizant of the impact that a FD program has on available district resources, as well as research results which do not indicate statistically significant gains for students from enriched and non-disadvantaged backgrounds enrolled in FD programs, the Superintendent authorized a pilot study (2003-2004) and the present study (2004-2005) to determine if the benefits of FD kindergarten justify the costs. Specifically, does enrollment in a FD kindergarten program result in statistically significant gains in reading achievement when compared to enrollment in a half-day (HD) kindergarten program? The researcher sought to describe classroom structures (large-group instruction, small-group instruction, individual instruction, learning centers, cooperative learning, individual-creative activities, free play, snack), instructional methodologies (teacher-directed vs. child-initiated, individual teacher-student communicative exchanges (instructional, procedural, social/behavioral), and amount and content of instruction (reading, writing, math, science, social studies) to determine if these varied as a function of the additional time provided in a FD program. The amount and form of parent-teacher contact, as well as teachers' perceptions of the advantage(s) and disadvantage(s) of FD versus HD kindergarten were investigated.
Pilot Study

A pilot study was conducted during the 2003-2004 school year at the request of district leadership. Although the pilot study was conducted in 2003-2004, the year prior to the present study (2004-2005), the pilot study and the data obtained in it are an important part of the present study. The pilot study is considered as the baseline and the benchmark against which the new data were compared. The procedures and design of the 2004-2005 study built upon the pilot study and its conclusions.

The researcher observed the district’s four half-day kindergarten classes in March and early April, 2004 using the Early Childhood Classroom Observation System or ECCOS (Elicker & Mathar, 1997). For the pilot study, the ECCOS was modified to focus observation on classrooms processes rather than on individual students. Data were collected on the use of classroom structures (individual, small-group, large-group, learning centers, cooperative learning, individual creative, free play, and snack/rest), instructional methodology (teacher-directed vs. child-initiated), content of teacher-student communicative exchanges (procedural, instructional, social/behavioral), amount and context of instruction (reading, writing, math, science, social studies), and ratio of transitions to activities. A 1-minute interval time sampling procedure was used consisting of 40 seconds of observation followed by 20 seconds of data recording. Each half-day class was observed three times, from the beginning to the end of the school day, for a total of 495 1-minute intervals (165 minutes per day). No observations occurred during specials (music, physical education, library, Spanish). Comprehensive profiles of classroom activities, in both absolute and proportional terms, were prepared following Elicker’s and Mathar’s 1997 guidelines: (a) calculate the total number of observations in each category, (b) convert these frequencies to percentages of total observations, and (c) convert each percentage to minutes per day based on total class time available.
Student reading achievement was measured by each classroom teacher in March and early April, 2004 using the Developmental Reading Assessment (DRA) (Beaver, 2001).

Minutes of monthly grade-level team meetings were analyzed for themes and patterns that were reflective of the teachers’ perceptions of the advantages and disadvantages of full-day kindergarten as compared to half-day kindergarten (Patton, 2002).

Parent-teacher interaction logs were analyzed for content of parent-teacher contacts.

Summary of Methods in the Current Study

This action-research, program evaluation, or using a more contemporary classification, this cross-sectional, descriptive study (Johnson, 2001), employed four methodologies: classroom observations, DRA assessment, content analysis of minutes of monthly grade-level meetings, and analysis of parent-teacher interaction logs.

A research assistant observed each kindergarten class twice, from the beginning to the end of the school day for a total of 590 1-minute intervals (295 minutes per day). No observations occurred during specials (art, music, physical education, Spanish, library) or the lunch/recess hour. To establish the reliability of the research assistant’s observations, the researcher reviewed and provided examples of each category contained on the ECCOS (Eliezer & Mathur, 1997). Inter-observer agreement was established in a series of three 20 minute video-taped classroom observations prior to data collection. A level of 90% or greater exact agreement \( n \text{ agreements} \div (n \text{ agreements} + n \text{ disagreements}) \) was obtained between the researcher and the research assistant. (See Table 3)

Classroom observations of structures (large-group instruction, small-group instruction, individual instruction, learning centers, cooperative learning, individual-creative activities, free-play, snack, transitions) were recorded on a minute-by-minute
basis by checking the box under the structure that was observed for most of the one minute interval. Individual teacher-student communications were recorded as they occurred by placing a tally mark in the appropriate box (procedural (P), social/behavioral (S/B), instructional (I). The focus of instruction during each one minute interval (reading, writing, math, science, social studies) was recorded in the ECCOS comment section.

Table 3

Inter-Observer Agreement Current Study

<table>
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<tr>
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<th>Disagree</th>
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<td>2</td>
<td>38</td>
<td>94</td>
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<td>33</td>
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<td>36</td>
<td>91</td>
</tr>
</tbody>
</table>

*Note: Formula: n agreements / (n agreements + n disagreements) = % agreements*

The duration of classroom observations was not designed to be the same in the pilot and current study. Rather, it was determined that observations in classrooms from the beginning to the end of the school day provide more accurate profiles of what actually occurs during the school day. To accommodate the difference in observation times, raw data were totaled and recorded as a percentage of total observations. Each activity
percentage was converted to minutes per day based on total class time available to obtain a profile of classroom activity. The total numbers of individual teacher-student communicative exchanges in each category (procedural, social/behavioral, and instructional) were totaled and expressed as a percentage of total observations. Results were compared to pilot study results for half-day kindergarten (2003-2004).

The DRA (Beaver, 2001) was administered to each kindergarten student in March, 2005. The DRA was originally scheduled to be administered in late March and early April as in the pilot study; however, in view of the parent conference schedule (first week in April), the teachers administered the DRA to have the scores prior to conferences.

Using a t-test, the mean score of FD kindergarten students (2004-2005) was compared to the mean score of HD kindergarten students (2003-2004). A simple regression analysis was conducted to determine the relationships between the number of years a student attended preschool and DRA scores.

Monthly grade-level meeting minutes were reviewed for comments and statements regarding teachers' perceptions of the advantage(s) and disadvantage(s) of FD vs. HD kindergarten. Content Analysis was used to identify, classify, and code recurring patterns and themes (Patton, 2002).

Similarity in Composition of Cohort 1 and Cohort 2

Demographic data to demonstrate similarities between cohorts and to demonstrate similarity in student population across grades are presented in Table 4. Analysis of demographic data for Cohort 1 (HD) and Cohort 2 (FD) indicates that the ethnic composition is predominantly White (93%; 95%) and balanced in regard to gender. Students in both cohorts attended at least 1 year of preschool (Cohort 1: 96%; Cohort 2: 100%) and most students attended 2 or more years of preschool (Cohort 1: 88%; Cohort
2: 99%). More students in Cohort 2 attended preschool/daycare for 4 or more years than did students in Cohort 1 (59% vs. 24%).

There were more "older" children (birthdays before December 31st) in Cohort 1 (30, 37%) than in Cohort 2 (21, 24%); the number of "middle" children born between January 1 and May 31 was greater in Cohort 2 than in Cohort 1 (Cohort 1: 30, 37%; Cohort 2: 44, 50%); "young" children (birthdays between June 1 and October 1) were the same in both cohorts (22, 25%). No child was from a disadvantaged background as indicated by eligibility for free milk.

The steady increase in students who attend 4 or more years of preschool/daycare prior to entering kindergarten is interesting. The number has steadily risen from 9 students in the 2001-2002 school year to 51 in 2004-2005. Conversely, the number of students attending only 2 years of preschool has steadily decreased from 59 students in the 2001-2002 school year to 6 students in the 2004-2005 school year.

Presentation and Analysis of Data

Comprehensive profiles of classroom activities were prepared to answer four of the seven research questions that guided this study. Full-day and half-day classrooms were compared by examining the absolute and proportional frequency distributions for each classroom structure (large-group instruction, small-group instruction, individual instruction, free play, learning centers, cooperative learning, individual-creative activities, snack, and transitions). The absolute amount of time was obtained by counting the total number of observations in each classroom structure. Absolute values were converted to percentage of total observations for each program type and then converted to minutes per day based on total minutes available for instruction (FD: 295; HD: 165).
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<thead>
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<td>1 (1%)</td>
<td>3 (4%)</td>
<td>9 (0%)</td>
</tr>
<tr>
<td>1 Year</td>
<td>50 (48%)</td>
<td>35 (51%)</td>
<td>24 (29%)</td>
<td>6 (7%)</td>
</tr>
<tr>
<td>2 Years</td>
<td>16 (15%)</td>
<td>20 (29%)</td>
<td>28 (34%)</td>
<td>29 (33%)</td>
</tr>
<tr>
<td>3 Years</td>
<td>9 (8%)</td>
<td>6 (9%)</td>
<td>20 (24%)</td>
<td>51 (59%)</td>
</tr>
<tr>
<td>4+ Years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aug-Dec</td>
<td>27 (26%)</td>
<td>20 (29%)</td>
<td>30 (37%)</td>
<td>21 (24%)</td>
</tr>
<tr>
<td>Jan-May</td>
<td>44 (42%)</td>
<td>27 (40%)</td>
<td>30 (37%)</td>
<td>44 (51%)</td>
</tr>
<tr>
<td>June-Oct</td>
<td>33 (32%)</td>
<td>21 (31%)</td>
<td>22 (26%)</td>
<td>22 (25%)</td>
</tr>
</tbody>
</table>

Results were used to describe and determine differences between the full-day and half-day kindergarten program. (See Table 5) Proportional differences greater than 5% and absolute values of 0 were considered significant indicators of changes in instructional methodologies/structures in FD vs compared to HD kindergarten.
Research Question #1

What are the differences in instructional methodology (teacher-directed versus child-initiated) in full-day versus a half-day program?

Teacher-directed instructional methodologies accounted for the greatest amount of time in both the FD and HD kindergarten programs. Proportional to the total amount of instructional time available, children were engaged in teacher-directed learning 49% of the school day in both the full-day and half-day programs. In absolute terms, students spent 64 more minutes involved in teacher-directed learning in the full-day program than they did in the half-day program (145 vs. 81).

Child-initiated activities accounted for a greater amount of available class time, in both absolute and proportional terms, in the FD program as compared to the HD program (FD: M = 79, 28%; HD: M = 48, 11%). In absolute terms, children in the FD program spent 61 more minutes engaged in child-initiated activities per day than did children in the HD program. Proportional to total instructional time available, children in the FD program spent 17% more time per day engaged in child-initiated activities than did children in the HD program. The proportional difference of 17% is considered significant.

The ratio of teacher-directed to child-initiated instruction, in both absolute and proportional terms, indicates that the FD program was more balanced in terms of time spent in teacher-directed vs. child-initiated instruction (FD: 1.84:1, 1.75:1; HD: 4.39:1, 4.46:1).
<table>
<thead>
<tr>
<th>Classroom Activity</th>
<th>Full-Day (FD)</th>
<th>Half-Day (HD)</th>
<th>Differences (FD-HD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Teacher-Directed (Total)</td>
<td>145 / 49</td>
<td>81 / 49</td>
<td>+64 / 6</td>
</tr>
<tr>
<td>Large-Group Active</td>
<td>62 / 21</td>
<td>43 / 26</td>
<td>+19 / -5</td>
</tr>
<tr>
<td>Large-Group Listening</td>
<td>15 / 5</td>
<td>18 / 10</td>
<td>-3 / -5</td>
</tr>
<tr>
<td>Small-Group Instruction</td>
<td>20 / 7</td>
<td>0 / 0</td>
<td>+20 / +7</td>
</tr>
<tr>
<td>Individual Instruction</td>
<td>48 / 16</td>
<td>20 / 12</td>
<td>+28 / +4</td>
</tr>
<tr>
<td>B. Child-Initiated (Total)</td>
<td>79 / 28</td>
<td>18 / 11</td>
<td>+61 / +7</td>
</tr>
<tr>
<td>Free Play Indoors</td>
<td>40 / 14</td>
<td>4 / 2</td>
<td>+36 / +12</td>
</tr>
<tr>
<td>Free Play Outdoors</td>
<td>0 / 0</td>
<td>14 / 8</td>
<td>-14 / -8</td>
</tr>
<tr>
<td>Learning Centers</td>
<td>20 / 7</td>
<td>0 / 0</td>
<td>+20 / +7</td>
</tr>
<tr>
<td>Cooperative Learning</td>
<td>11 / 4</td>
<td>0 / 0</td>
<td>+11 / +4</td>
</tr>
<tr>
<td>Individual Creative</td>
<td>8 / 3</td>
<td>0 / 0</td>
<td>+8 / +5</td>
</tr>
<tr>
<td>C. Other (Total)</td>
<td>73 / 25**</td>
<td>67 / 41</td>
<td>+6 / -16</td>
</tr>
<tr>
<td>Snack</td>
<td>30 / 10***</td>
<td>16 / 9</td>
<td>+14 / +1</td>
</tr>
<tr>
<td>Rest Time</td>
<td>20 / 8****</td>
<td>0 / 0</td>
<td>+20 / +8</td>
</tr>
<tr>
<td>Transitions</td>
<td>43 / 15</td>
<td>51 / 31</td>
<td>-8 / -16</td>
</tr>
</tbody>
</table>

Note. **Specials and lunch/recess not included in total class time available. ***Rest time not included in total: included in individual work. ** Full-Day X = 2 snacks per day
**** Rest Time = Students read or rest quietly on rug, teacher provides 1:1 instruction/assessment
Research Question #2

How do the following classroom structures differ in full-day as compared to half-day kindergarten: large-group active, large-group listening, small-group, individual, learning centers, cooperative learning, individual-creative activities, free play, snack, transitions?

Teacher-Directed

Large-group active instruction. In absolute terms, students enrolled in the FD program were engaged in large-group active instruction 19 minutes more per day than were students in the HD program (M = 62 vs. M = 43). Proportional to the total amount of class time available, large group active instruction accounted for a greater proportion of available instructional time in the HD program (21% vs. 26%). The proportional difference of 5% is considered significant.

Large-group listening instruction. Large-group listening accounted for a greater amount of time in both absolute and proportional terms in the HD program as compared to the FD program (FD: M = 15, 5%; HD: M = 18, 10%). In absolute terms, students in the HD program spent 3 minutes more per day in large-group listening. Proportional to total amount of instructional time available, students in the HD program spent 5% more time engaged in large-group listening. The proportional difference of 5% is considered significant.

Comments recorded on ECCOS (Ellicker & Mathur, 1997) indicated fundamental differences in the way large-group listening was used in the FD program as compared to the HD program. In the FD program large-group listening was used predominantly for story reading, while in the HD program, large-group listening was used predominantly to reinforce rules for class behavior. These findings were validated by teacher comments recorded in grade-level meeting minutes. Half-day teachers reported that they frequently engaged in large-group listening activities to reinforce classroom rules/routines (e.g., “In the half-day program I felt like I was always talking to the class about the way they were...
supposed to behave or helping students get along with each other. "or "In the half-day program I was always calling the students to the rug to remind them of the class rules or to talk to them about their behavior."

Small-group instruction. In the FD program, students spent an average of 26 minutes per day, or 7% of the available instructional time involved in small-group activities as compared to the HD program where small-group instruction was not observed. The absence of small-group instruction in the HD program is considered significant.

Comments on the ECCOS indicate that small-group instruction was used to provide direct reading instruction to students in ability based reading groups, as well as to provide skill-specific instruction for students in need of remediation using flexible groupings.

Individual instruction. Students in the FD program spent a greater amount of absolute and proportional time engaged in individual instruction than did students in the HD program (FD: $M = 48, 16%$; HD: $M = 20, 12\%$). In absolute terms, students in the FD program spent 28 minutes more per day engaged in individual instruction than did students in the HD program. Proportional to total amount of instructional time available, students in the FD program spent 4% more time engaged in individual instruction. The proportional difference of 4% is not considered significant.

Comments recorded on the ECCOS (Ellicker & Mathur, 1997) indicate that the focus of individual instruction was qualitatively different in the FD program when compared to the HD program. Data indicate that, in the FD program, individual instruction consisted primarily of 1:1 teacher-student instruction and writing workshop and to a lesser extent, completion of worksheets. In the HD program, individual instruction consisted primarily of student completion of worksheets. No instance of 1:1 instruction and only instance of writing workshop was observed in the half-day program.
Child-Initiated

Free-play outdoors. Free-play outdoors accounted for a greater amount of time, in both absolute and proportional terms, in the HD program when compared to the FD program (FD: M = 0, 0%; HD: M = 14, 8%). Students in the HD program spent 14 minutes, or 8% of available instructional time per day playing outdoors. Comments noted on the ECCOS indicated that free-play outdoors was not a viable option in the FD program due to inclement weather conditions.

Free-play indoors. Free-play indoors accounted for a greater amount of time, in both absolute and proportional terms, in the FD program when compared to the HD program (FD: M = 40, 14%; HD: M = 4, 2%). Students in the FD program spent 36 more minutes engaged in free-play indoors than did students in the HD program. Proportional to the total instructional time available, students in the FD program spent 12% more time engaged in free-play indoors than did students in the HD program. The proportional difference of 12% is considered significant.

In the full-day program, free-play indoors consisted of free-play and free-exploration. In the half-day program, free-play indoors was substituted for free-play outdoors when weather did not permit outside play.

In the full-day program, free-play indoors was connected to snack time. Students in the FD program were provided with a set amount of time for snack in the morning and afternoon (e.g., Teachers used a clock to show children when snack ended. Students monitored the time via the clock, thereby reinforcing time skills – a math concept). As students finished eating their snacks, they cleaned up their area and, if time remained, went to the carpet area to read a book alone or with a friend or, join with peers to cooperatively build a 100 piece puzzle. Comments recorded in minutes of grade-level team meetings indicated that the focus of the cooperative activity changed over the school year. Students were exposed to various activities in the beginning of the year (e.g.,
blocks, legos, puzzles, etc.). As the year progressed, students voted on which cooperative activity was “open” for play during that school week.

A major difference between the FD and the HD program was the inclusion of a “free exploration” period daily in the FD schedule. During this time (36 minutes at the end of each school day) students were allowed to play with their peers in any of the “open” learning/activity centers in the classroom (e.g., dress-up area, kitchen area, science center, computers, block area, puzzle area, reading corner, etc.). Teachers reported that students suggested ideas for activity centers based on specific areas of interest. If appropriate, the teacher developed a center to tap into this interest. Teachers reported that parents would assist in providing materials for these “special interest” centers, thereby fostering school-home relationships.

Learning centers: Students in the full-day program spent a greater amount of time, in both absolute and proportional terms, in learning centers than did students in the half-day program (FD: M = 26.7%; HD: M = 0.0%). In absolute terms, students in the FD program spent 29 minutes more per day of available instructional time in learning centers. Proportional to total amount of instructional time available, students in the FD program spent 7% more time in learning centers than did students in the HD program. The proportional difference of 7%, combined with the absence of the use of learning centers in the HD program, is considered significant.

Cooperative learning: Students in the full-day program spent a greater amount of time, in both absolute and proportional terms, engaged in cooperative learning than did students in the half-day program (FD: M = 11.4%; HD: M = 0.0%). In absolute terms, students in the FD program spent 11 minutes more per day engaged in cooperative learning activities. Proportional to the total amount of instructional time available, students in the FD program spent 4% more time engaged in cooperative activities than did students in the HD program. The absence of cooperative learning activities in the HD program is considered significant.
Individual-creative activities. Students in the full-day program spent a greater amount of time in both absolute and proportional terms engaged in individual creative activities than did students in the half-day program (FD: $M = 8.3%$; HD: $M = 0.9%$). In absolute terms, students in the FD program spent 8 minutes more per day engaged in individual creative activities than did students in the HD program. Proportional to the total amount of instruction time available, students in the FD program spent 3% more time engaged in individual creative activities than did students in the HD program. The absence of individual creative activities in the HD program is considered significant.

Other Structures

Transitions. Transitions accounted for a greater amount of available class time, in both absolute and proportional terms, in the HD program than in the FD program (FD: $M = 43.15%$; HD: $M = 51.31%$). In absolute terms, students in the HD program spent 8 minutes more per day engaged in transitions. Proportional to the amount of instructional time available, students in the HD program spent 31% of available instructional time engaged in transitions as compared to FD students who spent 13% of available instructional time engaged in transitions.

Transitions between activities within the classroom took less than 1 minute in the FD program with most transitions occurring in 30-60 seconds. Comments on the ECCOS indicated that students moved "quickly and quietly" between settings (e.g., rug to desks and vice versa). On the other hand, in the HD program, transitions between activities within the classroom took an average of 2 minutes with most transitions taking between 90 and 160 seconds. Comments noted on the ECCOS (Ellicker & Mashur, 1997) indicated that transitions in the HD program were accompanied by a great deal of noise and required frequent reminders and redirections from the classroom teacher and/or classroom assistant. Transitions in the HD program were often lengthened in time.
because the teacher was engaged in resolving social and/or behavioral issues that arose during transitions.

Comments recorded in minutes of monthly grade-level meetings provide insight into the increased amount of time consumed by transitions in the HD program. Full-day teachers indicated that they spent the first 2 months of school focusing on and reinforcing classroom rules and routines (e.g., “I spent all of September and October setting up routines. It has paid off because students know what to do without me constantly telling them what to do.” or “I spent weeks at the beginning of the year having students engage in over-corrections (repeating correct behavior over and over so that it becomes automatic) so that they learned what was expected when they moved from one place to the other.”) or “This year (full-day) I didn’t worry about the time I was spending working on class routines because I knew that I had lots of time to work on the curriculum. Last year (half-day) I felt really pressed for time all the time.”) Comments from teachers in the HD program indicated that they spent the first 2 to 3 weeks of school explicitly addressing classroom rules and routines due to concerns regarding available instructional time (e.g., “I don’t have enough time as it is to teach everything that I have to teach. I couldn’t waste any more time setting up class routines.”) or “Everything was a compromise. If I spent time establishing class routines something else had to be omitted and more often than not it was math.”)

Snack time. In the full-day program, two snack periods were included during the school day as compared to one snack period in the half-day program. Consequently, snack time accounted for a greater amount of total time, in both absolute and proportional terms, in the FD program than in the HD program (FD: $M = 30, 10\%$; HD: $M = 16, 8\%$). Students in the FD program spent 14 more minutes per day in snack time. Proportional to total time available for instruction, students in the FD program spent 1\% more time engaged in snack time. The proportional difference of 1\% is not considered significant.
When time spent in snack and recess is added to time spent in transitions, students in the FD program spent 25% of available instructional time engaged in non-instructional activities as compared to students in the HD program who spent 41% of available instructional time engaged in non-instructional activities. Conversely, students in the FD program spent 75% of the school day engaged in teacher-directed and child-initiated instruction as compared to students in the HD program who spent 59% of the school day engaged in teacher-directed and child-initiated instruction.

Rest time. In the full-day program, 20 minutes was designated for rest time daily after lunch. Students were encouraged to either rest or quietly read a book with the rule being "no talking allowed." During this time period, comments recorded on ECCOS (Elicker & Mathar, 1997) indicated that the teacher worked individually with students either assessing mastery of concepts presented in the curriculum, or reviewing and reinforcing previously presented concepts. Comments contained in monthly grade-level meeting minutes indicated that this time was also used for teacher-student relationship building (e.g., "Sometimes I would just pick a child having a tough time that day and sit and talk about anything that he wanted to talk about. I just wanted him to know that I cared." or "When students were asked to select rewards for good behavior one of the rewards was time to talk to me alone during rest time. I didn't know how important this was to some children until they began to ask for this reward. After this I tried to schedule some alone time for everyone during the month.")

Research Question #3

What are the differences in amount and content of instruction (reading, writing, math, science, social studies) in both absolute and proportional terms, in a full-day versus a half-day program?
An absolute difference, greater than 10 minutes, between the amount of time students in the full-day program were engaged in content area instruction as compared to students in the half-day program was considered significant.

**Reading**

Analyses of content of instruction indicated that reading accounted for the greatest amount of time, in both absolute and proportional terms, in both the FD and HD program (FD: $M = 65$, 22%; HD: $M = 64$, 39%) (see Table 6). In absolute terms, students in the FD program spent 1 minute more per day engaged in reading than students in the HD program. Proportional to the total amount of instructional time available, students in the HD program spent 17% more time engaged in reading. The absolute difference of 1% is not considered significant. Proportionally, in the HD program, time spent on reading instruction negatively impacted the amount of available instructional time available for instruction in other content areas.

Comments contained on ECCOS (Elicker & Matias, 1997) indicated that reading instruction in both the FD and HD programs contained all the elements considered essential for reading development: phonemic awareness instruction, phonics instruction, fluency instruction, vocabulary instruction, and text comprehension instruction (National Reading Panel, 2001).

**Writing**

Writing accounted for a greater amount of time, in both absolute and proportional terms, in the FD program than in the HD program (FD: $M = 40$, 13%; HD: $M = 13$, 8%). In absolute terms, students in the FD program spent 27 more minutes per day engaged in writing activities. Proportional to total instructional time available, students in the FD program spent 5% more time engaged in writing activities. The absolute difference of 27 minutes more in FD than in HD is considered significant.
Mathematics

In the full-day program, more instructional time, in both absolute and proportional terms, was devoted to mathematics (FD: $M = 40, 13\%$; HD: $M = 15, 9\%$). In absolute terms, students enrolled in the FD program spent 25 more minutes per day engaged in mathematics instruction. Proportional to the total instructional time available, students in the FD program spent 4% more time engaged in mathematics. The absolute difference of 25 minutes is considered significant.

Science/Social Studies

Students in the FD program spent more time, in both absolute and proportional terms, engaged in science/social studies instruction than did students in the HD program (FD: $M = 35, 12\%$; HD: $M = 4, 2\%$). In absolute terms, students in the FD program spent 31 minutes more per day engaged in science and/or social studies instruction. Proportional to the total amount of time available for instruction, students in the FD program spent 10% more time engaged in science and/or social studies instruction. The absolute difference of 31 minutes is considered significant.

Total Amount of Content Area Instruction

The total amount of time spent on content area instruction was greater, in both absolute and proportional terms, in the FD as compared to the HD program (FD: $M = 180, 61\%$; HD: $M = 96, 58\%$). In absolute terms, students in the FD program spent 84 minutes more per day engaged in content area instruction than did students in the HD program. Proportional to the total amount of instructional time available, students in the FD program spent 3% more time engaged in content area instruction. The absolute difference of 84 minutes between the FD and HD program is considered significant.
Table 6

<table>
<thead>
<tr>
<th>Content Area</th>
<th>M Full-Day (FD)</th>
<th>M Half-Day (HD)</th>
<th>Difference FD-HD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min%/h</td>
<td>min%/h</td>
<td>min%/h</td>
</tr>
<tr>
<td>Reading</td>
<td>65 / 22</td>
<td>64 / 39</td>
<td>+1 / -17</td>
</tr>
<tr>
<td>Writing</td>
<td>40 / 13</td>
<td>13 / 8</td>
<td>+27 / +5</td>
</tr>
<tr>
<td>Mathematics</td>
<td>40 / 13</td>
<td>15 / 9</td>
<td>+25 / +4</td>
</tr>
<tr>
<td>Science/Social Studies</td>
<td>35 / 12</td>
<td>4 / 2</td>
<td>+31 / +10</td>
</tr>
<tr>
<td>Total</td>
<td>180 / 61</td>
<td>96 / 58</td>
<td>84 / +3</td>
</tr>
</tbody>
</table>

Comments by teachers during monthly grade level meetings indicate that reading, writing workshop, and math lessons were presented daily in the FD classroom. Science and/or social studies were directly taught two times per week; however, concepts (e.g., weather, seasonal changes, nutrition, citizenship, community helpers, etc.) were presented in thematic units and were integrated throughout subject areas and classroom activities. Full-day teachers also reported that they were able to present complete lessons each day and were able to pace the lesson based on student response.

In the half-day program, reading was taught every day. Writing and math were included in each teacher’s lesson plans at least twice a week; however, in actual practice, these subjects were often shortened or eliminated due to time constraints. The teachers reported that science and/or social studies were directly taught once every 2 to 3 weeks.
although curriculum concepts (weather and seasons) were reinforced daily in the morning message.

The researcher noted differences between teachers' lesson plans and what was actually taught in the half-day program. Comments on ECCOS (Elicker & Mashur, 1997) indicated that, while daily lesson plans contained blocks of time devoted to content-area instruction, the teachers did not adhere to these time limits. Mediating student conflicts, assisting in transitions, and spending time during lessons redirecting whole group and individual behavior negatively impacted ability to complete lessons within specified time intervals. This observation was validated by comments from HD teachers who stated, "I plan each day to teach everything, but there's never enough time."

In the full-day program, the research assistant noted that all lesson plans were implemented as written. Comments noted on ECCOS indicated that teachers adhered to time blocks in lesson plans.

Research Question #4
How do teacher-student communicative exchanges (procedural, social/behavioral, instructional) differ in full-day as compared to half-day kindergarten?

Analyses of teacher-student communicative exchanges (see Table 7) indicate that instructional comments accounted for the greatest number of teacher-student communicative exchanges, in both absolute and proportional terms, in the full-day program (FD: 413, 70%; HD: 29, 10%). This represents an absolute difference of 384 communicative exchanges and a proportional difference of 60% when instructional comments in the FD program are compared to instructional comments in the HD program.

Social/behavioral comments accounted for the greatest number of teacher-student communicative exchanges in the HD program (FD: 148, 25%; HD: 157, 55%). This represents an absolute difference of 9 and a proportional difference of 30% when social/behavioral comments in the HD program are compared to social/behavioral
Table 7

*Individual Teacher-Student Communicative Exchanges*

<table>
<thead>
<tr>
<th>Type of Exchange</th>
<th>Full-Day (FD)</th>
<th>Half-Day (HD)</th>
<th>Differences (FD-HD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural</td>
<td>29 / 5</td>
<td>100 / 35</td>
<td>-71 / -30</td>
</tr>
<tr>
<td>Social/Behavioral</td>
<td>148 / 25</td>
<td>157 / 55</td>
<td>-9 / -30</td>
</tr>
<tr>
<td>Instructional</td>
<td>413 / 70</td>
<td>29 / 10</td>
<td>+384 / +60</td>
</tr>
<tr>
<td>Total</td>
<td>590 / 100</td>
<td>285 / 100</td>
<td>+305 / 0</td>
</tr>
</tbody>
</table>

Comments in the FD program. Comments noted on ECCOS indicated a qualitative difference between the social-behavioral feedback in the FD as compared to the HD program. In the FD program, teachers spent time teaching, reinforcing, and facilitating conflict resolution strategies. In class-size studies, these interactions would be coded as instructional in nature vs. the present study that codes these as social/behavioral communicative exchanges. In the HD program, teachers spent the majority of the time redirecting student behavior and defining inappropriate behavior.

Procedural comments accounted for a greater number of teacher-student communicative exchanges in both absolute and proportional terms in the HD program (FD: 29, 55%; HD:100, 35%). This represents an absolute difference of 71 and a proportional difference of 30% when the HD program is compared to the FD program. Comments noted on ECCOS indicated that teachers in the HD program spent time each day reviewing and reinforcing classroom rules and routines before each change in classroom activity.
Research Question # 5

How does teacher-parent contact differ in full-day versus half-day kindergarten?

Analyses of the Teacher-Parent Interaction Logs (See Table 8) indicate that, in both absolute and proportional terms, the majority of the contacts in the HD program involved behavioral concerns (24, 72%) while the majority of contacts in the FD program were social in nature such as arranging parent visits and chaperones for class trips (18, 72%).

A comparison of the behavioral contacts in the HD program to behavioral contacts in the FD program indicates an absolute difference of 23 and a proportional difference of 68% (FD: 1, 4%; HD: 24, 72%). Inappropriate student behavior continued to be a concern in the HD program well into the kindergarten year.

A comparison of the social contacts in the FD to the HD program indicates an absolute difference of 15 and a proportional difference of 63% (FD: 18, 72%; HD: 3, 9%). The absolute number of teacher-parent contacts that were academic in nature were the same in the HD and FD kindergarten programs (FD: 6, 24%; HD: 6, 18%). Proportional to the total number of parent-teacher contacts, there was a 6% difference between the number of academic contacts in FD as compared to the HD program.

Comments from monthly grade-level meeting minutes indicated that contacts involving academic and behavioral concerns were negative in nature. No teacher reported making any phone calls that concerned academic or behavioral issues that were positive in nature. Conversely, teachers indicated that parent-teacher interactions that were social in content were more positive in nature and enabled the teacher to form more positive relationships with the families of their students (e.g., "When I called to set up time for a
parent to come in to read to the class or help with an activity I usually ended up talking to
the parent about a number of other things such as their other children."

Table 8

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number/Percent</td>
<td>Number/Percent</td>
<td>Number/Percent</td>
</tr>
<tr>
<td>Academic</td>
<td>6 / 24</td>
<td>6 / 18</td>
<td>0 / +6</td>
</tr>
<tr>
<td>Behavior</td>
<td>1 / 4</td>
<td>24 / 72</td>
<td>-23 / -68</td>
</tr>
<tr>
<td>Social</td>
<td>18 / 72</td>
<td>3 / 9</td>
<td>+15 / +63</td>
</tr>
<tr>
<td>Total Contacts per Month</td>
<td>25 / 100</td>
<td>33 / 100</td>
<td>-8 / 0</td>
</tr>
</tbody>
</table>

Note: *E-mail implemented for all teachers in February, 2005. E-mail contacts not included as parent-teacher contacts via e-mail not included in pilot study.

Comments from monthly grade-level meeting minutes also indicated that parents of students in both the FD and HD program were kept informed of the content of instruction and special events through a monthly newsletter prepared by the kindergarten teachers. Consequently, the teachers did not feel the need to make personal phone calls regarding these things.

An e-mail address was established for each classroom teacher in February of the study year. E-mail addresses were posted on the school website and parents were encouraged, via letter from the principal, to use e-mail to contact their child’s teacher. It is not known the extent to which the use of e-mail as opposed to the telephone may have
exerted an impact on the data obtained on the Teacher-Parent Interaction Log.

Reconstructing the months, teachers reported a total of 14 e-mail contacts, initiated by the parents, that were academic in nature (parents requesting updates on student progress). These contacts were not recorded in the Teacher-Parent Interaction Log.

Research Question # 6

What are teachers’ perceptions of the advantages and disadvantages of full-day as compared to a half-day kindergarten program?

Comments from minutes of monthly kindergarten grade-level team meetings attended by the kindergarten teachers and the building principal were subject to content analysis. Patterns and themes were identified, classified, categorized, and coded (Paton, 2002). The overarching theme that connected teachers’ comments in both the FD and HD programs was “time.” Most comments included a reference to time either in the context of “not enough time” or “now have enough time.” Within this context of time, the following recurring themes/patterns were identified and coded: (a) ability to provide a more developmentally appropriate program (DAP), (b) ability to provide a balanced curriculum (Cur), (c) ability to teach to mastery (Mast), (d) ability to differentiate instruction (Inst), (e) ability to establish a sense of community within the classroom (SCom), (f) ability to form and maintain positive home-school relationships (HSR), and (g) less stress and frustration (S/F).

The following is a summary of comments made by kindergarten teachers in both the FD and HD programs. Many comments were repeated throughout the school year during both the pilot, half-day study (2003-2004) and the current full-day study (2004-2005).
Ability to Provide a More Developmentally Appropriate Program (DAP)

Half-day

1. “I know children need to play with each other, but there isn’t any time to let them just explore and play…. I let them have recess but I worry about the time that this takes when there is so much that I have to teach them…”

2. “With limited time I find I have to teach the whole group…there is never enough time to break students into small groups or to let the students work together to discover the principle…At least if I am teaching the concept directly I feel like some of the students will get it.”

3. “The parents are upset that the students are given time for recess and snack…they are always complaining that the program is too easy and needs to be more academic…”

4. “The parents are very critical when we do any thematic units like the penguins…the children love learning about the penguins but the parents say it takes time away from the important stuff…”

5. “I try to balance seat time with active movement, but most days I just don’t have the time to do this.”

Full-day

1. “I now have enough time to let the children do some fun stuff.”

2. “There’s time in the day to let the students freely explore the room.”

3. “Last year (half-day) I never let students just play in the activity centers…I know that they needed to do this, but I just couldn’t let them because there wasn’t enough time for the academics that they had to learn.”

4. “I’m able to spend time developing positive social skills and helping students learn the skills that they need to solve problems with their friends…last year (half-day) I would just tell the students what to do so that we could get back to work.”
5. "I have more time to just talk to the children about things that interest them. Last year I always felt rushed to get everything in so I didn't feel like I had the time to just talk. I always felt bad about this because I know children are very interested in sharing stories."

6. "I make sure that the students sing and dance throughout the day. I now feel like I can do what all those workshops tell me I should be doing...giving short active breaks between intense learning periods...last year there was no time to do this."

**Ability to Provide a More Balanced Curriculum (Cart)**

**Half-Day**

1. "I spend most of the time on reading because this is what the first grade teachers and the parents are concerned about...I don't want the first grade teachers to think that I'm a bad teacher."

2. "I don't have time to teach everything...most days I'm only able to get to the reading activities...I'm lucky if I teach math two times a week for the full amount of time that I have scheduled...some days I don't get around to teaching math at all...I worry about the lack of consistency...the kids are just not remembering what I teach...There's never enough time for science and social studies...I read books that contain themes that support the curriculum in these areas and that is about the extent of my instruction in these areas...I do the best I can and it's never good enough."

**Full-Day**

1. "Finally, I have the time to teach everything and still let the kids have time just to be kids."

2. "This is the first year that I felt like I can take the time to let the students play in the snow or take a walk outside to notice signs of spring."
3. “In the half-day program I was never able to finish anything. I always felt like I was rushing to get everything in...some students just didn’t get it, and I wasn’t able to help them get it.”

4. “Students seem to really understand math now...they have no difficulty applying what they have learned.”

5. “This is the first year that I am actually following my lesson plan”

Ability to Teach to Mastery (Mast)

Full-day

1. “A full-day program lets me tie everything together...I am able to take the time I need to teach concepts... there’s time to let the students do more hands-on activities so that they can explore the concepts in more depth.”

2. “There is more continuity in learning...I have the time to present information on several days in a row...I can do math everyday...the students are doing so much better on math assessments that they have ever done in the past.”

3. “I have the time now to finish projects...If I don’t finish something in the morning I can finish it in the afternoon... for the first time I can teach to closure.”

4. “I can spend more time on what really counts because the students are able to follow the class routine and rules without me having to constantly remind them of what they are suppose to be doing... less interruptions when I am working with a small group...I don’t have to stop and quiet the class or make sure that everyone is working.”

5. “I am able to present more topics thematically...I can integrate things that I teach into the units... I am able to take the time to connect the things that I teach to the children’s everyday life.”
Ability to Differentiate Instruction (Inst)

Half-day

1. "If I take time to assess each student to find out where they are, it's time I am not working with the class... It takes me at least 2 weeks to assess everyone so I only do it at the beginning and end of the school year."

2. "There's never any time for individual instruction."

3. "I can't slow down to make sure everyone understands... If a student falls behind I try to give them more time, but with less than 3 hours there isn't any "free" time to work with the students."

4. "It's a real problem when students are absent... I don't have enough time to reteach the concepts that they missed."

Full-day

1. "I now have time everyday to work with students who need more help... last year there was never enough time to help students... I just kept hoping that everyone was learning what they were supposed to be learning."

2. "Every day I work with a few students individually either assessing their learning or providing help in areas where they are not progressing adequately."

3. "I have time each week to listen to everyone read individually."

4. "I can provide individual attention to each child when they need it."

Greater Sense of Community (Stom)

Half-day

1. "It would be nice for the students to work with the older students... I just can't find the time to do this."

2. "It seems like all the kids do is argue with each other all day... I spend so much of my time telling them to "just be nice."
Fall-day

1. "The students get along better with each other... I think it is because they spend more time together all day in the classroom."

2. "Students help each other more... students watch out for each other."

3. "Students get to know each other better and are more tolerant of each other."

4. "The students love their buddy class activities... they really enjoy the time that they spend with the third grade students... this is the first time that we have been able to engage in buddy class activities... this is the first time that students really feel like they are part of the school."

5. "The students love their classroom... The students take pride in their class and are thrilled to show people their work that is hanging up in the room... The students are very particular about the room and like everything to be in the correct place."

6. "There's now enough time to let the students participate in the community service activities."

7. "The classroom is more orderly now. I know the children so well that I can anticipate a problem before it occurs. I am much more proactive rather than reactive."

Ability to Form and Maintain Positive Home-School Relationships (Hir)

Half-day

1. "Sometimes when a parent asks me a question about their child I have a hard time remembering what section (AM or PM) the student is in... hard to put the students together with their parents."

2. "Sometimes when the parents asked me a question about their child I couldn't remember anything specific and I would have to look at my notes."

3. "Conferences are a real nightmare with all the students I am responsible for."
1. “With only 17 students it is so much easier to get to know the parents.”

2. “With only 17 students I know each child so well... I know what they like and dislike and I really know how strong they are as a student... I feel very confident talking to parents.”

3. “The parents have been so much more supportive of the program this year. They have all made time to come in to help with projects and activities.”

4. “I feel like I know the parents on a much more personal level this year.”

Less Stress and Frustration in the Full-Day Program (S/F)

Half-day

1. “I feel like I just want to quit... I go home every night with a migraine.”

2. “I feel like I am in one of those wheels that the hamsters use... I keep running and running but get nowhere fast.”

3. “I never feel like I never have enough time to do a good job... I didn’t go into teaching to feel like a failure... I know that I am failing a lot of the children but there is just not enough time.”

4. “I am so frustrated... there is so much that I am supposed to teach but there is no way that I can get to all of it.”

5. “So many students complain of stomachaches and headaches each day. It seems like someone is always missing when I go to teach something new.”

6. “At least twice a week I have a student who is crying that they don’t want to go to Tiny Treasures (child-care) after school ends... they beg to stay or beg to have me call their mother and let them go home.”
Full-day

1. "I feel like a new person. I go home feeling good about myself."

2. "I don't feel as stressed during the day...if I don't get to finish something in the morning I know that I will have time to finish it in the afternoon."

3. "No more migraines."

4. "I am not here till all hours of the night getting material ready for the next day...It is so much easier preparing for 17 than for 42 or more."

5. "I don't feel as tired at the end of the day...I actually spend time now planning thematic lessons with the other teachers rather than spending my time cutting out material for all hours of the night."

6. "Students are not fighting with each other all day long."

7. "After the first 2 months, students are not going to the nurse complaining of stomachaches or headaches."

Research Question #7

What are the gains, if any, in reading achievement of students enrolled in full-day as compared to half-day kindergarten program?

Independent samples t-test

An independent samples t-test was conducted to determine if the difference between mean DRA scores for students enrolled in full-day kindergarten was statistically significant when compared to mean DRA scores of students enrolled in half-day kindergarten.

The mean DRA score for full-day students (5.10) was compared to the mean DRA score for half-day students (7.32) resulting in a mean difference of -2.21. The t-value
(-2.40) is negative indicating that the mean for half-day students is greater than the mean for full-day students. The significance (2-tailed) at $p = .020$ is statistically significant ($p < .05$). (See Figure 1)

Results of the independent samples $t$ test show that students in the half-day kindergarten program made greater academic gains in reading than did students in the full-day program. Attributing cause and effect to these results can not be done at this time as prior existing factors such as cognitive ability, quality of preschool program, and reading level at the start of the school year were not controlled for in this study.

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Figure 1. Independent samples $t$ test
Regression Analysis (Full-Day Program)

A simple regression analysis was performed with the dependent variable DRA scores regressed on the independent variable number of years of preschool (See Figure 2). Analysis revealed that the number of years of preschool predicted the dependent variable DRA scores in the full-day program \( F(1,85) = 5.229, p = .025, p < .05 \). \( R^2 \) for the full-day model was .058 and adjusted \( R^2 \) was .047 which indicates that 5% of the variance in DRA scores is explained by the independent variable number of years of preschool.

While the model is statistically significant, the \( R^2 \) of .058 means that only 5% of the variance in DRA scores is explained by the number of years a student attends preschool prior to entering Kindergarten, leaving 95% of the variation in DRA scores to be explained by other factors.

Regression Analysis (Half-day Program)

A simple regression analysis was performed with the dependent variable DRA scores regressed on the independent variable number of years of preschool (See Figure 2). Analysis revealed that the number of years of preschool did not significantly predict the dependent variable DRA scores in the half-day program \( F(1,80) = 3.187, p = .078, p > .05 \). \( R^2 \) for the half-day model was .038 and adjusted \( R^2 \) was .026 which indicates that 3% of the variance in DRA scores is explained by the independent variable number of years a student attends preschool.
Descriptive Statistics

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Model Summary

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* Predictors: (Constant), SCHOOL

ANOVA

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* Predictors: (Constant), SCHOOL
b. Dependent Variable: DRA

Figure 2. Regression Analysis

Summary

Both quantitative and qualitative data were collected to determine the benefits of full-day kindergarten as compared to half-day kindergarten for students from enriched, non-disadvantaged backgrounds.

Observation data documented differences between FD and HD kindergarten in regard to classroom structures, instructional methodologies, amount and content of instruction, and individual teacher-student communicative exchanges. Data indicated
that teacher-directed instruction was used for a greater amount of time (both absolute
and proportional) than was child-initiated instruction in both the FD and HD program.
Compared to the HD program, the FD program used a greater variety and more child-
initiated classroom structures. More small-group instruction and individual instruction
were used in the FD program than was used in the HD program.

The full-day program provided more instruction, in both absolute and proportional
terms, in the areas of writing, math, science, and social studies than was provided in the
half-day program. Reading instruction was offered for the same absolute amount of time
in the FD and the HD program.

Individual teacher-student communicative exchanges were predominantly
instructional in nature in the FD program as compared to the HD program where the
majority of the teacher-student communicative exchanges were procedural in nature.
Teachers perceived that the FD program provided the time to teach to mastery,
differentiate instruction, develop positive teacher-parent relationships, develop positive
teacher-student relationships, and develop a sense of class community.

A statistically significant difference in reading gains was found between students
enrolled in full-day as compared to half-day kindergarten, with students in the half-day
program evidencing greater gains in reading achievement. Prior existing factors such as
cognitive ability, quality of preschool program, and reading level at the start of the school
year were not controlled for in this study; therefore, cause and effect can not be attributed
to these results.

Chapter 5 presents a summary of the research, a summary of the findings
contained in chapter 4, discussion of the findings, conclusions drawn from these findings,
and recommendations based on findings from the research.
Implementation of full-day kindergarten continues to engender controversy among educators and taxpayers who debate the educational, social, and behavioral advantages of providing full-day kindergarten in view of the added financial burden that this places on a school district. In May, 2005, Indiana University Bloomington's Center for Evaluation and Education Policy received an $802,000 grant from the U.S. Department of Education to study the long-term and short-term impact of full-day kindergarten on academic achievement (Indiana University, 2005). This 3-year study will compare the academic development of students enrolled in full-day kindergarten with the performance of students in traditional half-day programs in the Ellettsville, Indiana. This study will allow researchers to examine academic outcomes beyond the kindergarten year, as well as provide "rigorous evidence to support local and state policy-makers in their decision whether to provide additional funding for such programs" (Indiana University, 2005, p. 1).

Documenting the advantages of full-day kindergarten (FD) compared to half-day kindergarten (HD) is especially critical in affluent school districts as research has not found the same level of gains associated with enrollment in a full-day kindergarten program as have been found for students from disadvantaged or rural backgrounds (Yan & Lin, 2004).

The purpose for this study was to determine the academic and ecological benefits of full-day kindergarten as compared to half-day kindergarten for high SES students. The researcher sought to determine if enrollment in a FD kindergarten program resulted in gains in reading achievement when compared to enrollment in a HD kindergarten.
program. Ecologically, in this study the researcher sought to document and describe differences in classroom structures, instructional methodologies, amount and content of instruction, and teacher-parent interactions in FD kindergarten as compared to HD kindergarten. Teachers’ perceptions of the advantages and disadvantages of FD versus HD kindergarten were also obtained.

A large body of research documents academic gains from enrollment in full-day kindergarten compared to enrollment in half-day kindergarten; however, there is a paucity of research documenting how the additional time is spent in full-day kindergarten. Consequently, this study has added to the research base by documenting how additional time is used, in both absolute and proportional terms, in a full-day kindergarten program in an affluent school district. Quantitative and qualitative data were obtained to describe differences between full-day (FD) and half-day (HD) kindergarten with regard to instructional methodologies (teacher-directed vs. child-initiated), classroom structures (individual instruction, small-group instruction, large-group instruction, free play, learning centers, cooperative learning, individual-creative activities), amount and content of instruction (reading, writing, math, science, social studies), content of individual teacher-student communicative exchanges (instructional, procedural, social-behavioral), ratio of transitions to total instructional time available, content of parent-teacher contacts (academic, social, behavioral), and teachers’ perceptions of advantage(s) and/or disadvantage(s) of FD vs. HD kindergarten.

Results provide the basis for implementing program improvements that enhance children’s kindergarten experience and inform future district funding and policy decisions.
Summary of Study

Pilot Study

A pilot study was conducted during the 2003-2004 school year, the year prior to the present study (2004-2005), at the request of district leadership. The pilot study and data were the baseline and the benchmark against which present study results were compared. Procedures and design of the 2004-2005 study built upon the pilot study.

Current Study

In this cross-sectional, descriptive study (Johnson, 2001) the researcher used quantitative and qualitative methods to determine academic and ecological benefits of FD as compared to HD kindergarten for high SES students. After establishing rater agreements (90% or higher) with the researcher who conducted the pilot study, the research assistant conducted observations in each of district’s five kindergarten classrooms in March, 2005. The researcher used a modified Early Childhood Classroom Observation System or ECCOS (Flecker & Mathur, 1997) to document the amount of time, in both absolute and proportional terms, spent in teacher-directed (large-group active instruction, large-group listening instruction, small-group instruction, individual instruction), child-initiated (free play, learning centers, cooperative learning, individual-creative activities), and other activities (snack, transitions). The contexts of individual teacher-student communicative exchanges (procedural, social/behavioral, instructional) and the amount and content of instruction (reading, writing, math, science, social studies) were also recorded.

Minutes of monthly grade-level team meetings were subjected to content analysis to identify, classify, and code statements made by the teachers regarding the advantages and disadvantages of full-day and half-day kindergarten (Patton, 2002).
Developmental Reading Assessment (DRA) (Beaver, 2001) was administered to each kindergarten student in Cohort 2 (2004-2005) by kindergarten teachers in March, 2005.

Demographic Data: Cohort 1 and Cohort 2

Different cohorts of students receiving instruction for different lengths of time formed the pilot study group and the comparison group. Demographic data were used to show similarities between cohorts and to demonstrate similarities in student population across grades (See Table 4). Cohort 1 (HD) and Cohort 2 (FD) were balanced by gender and birthdates. Students in both cohorts were predominantly White, non-disadvantaged, and attended at least 1 year of preschool with most students attending 2 or more years of preschool. Demographic data for students enrolled in the 2001-2002 (third grade) and 2002-2003 (second grade) school years show similar class composition.

Summary and Discussion of Findings

Results of this study are consistent with research findings that time use in FD kindergarten is different quantitatively and qualitatively from time use in HD kindergarten (Cryan, et al., 1992; Ecker & Mathur, 1997; Panta, et al., 2002). Study results are also consistent with results obtained in the Early Childhood Longitudinal Study or ECLS-K (Walston & West, 2004). Thus, although the sample size is small and limited geographically, the results likely can be applied to other affluent school districts. See Table 9 for a comparison of research findings to prior research.

By focusing on program content and processes in this study, benefits of FD kindergarten as compared to HD kindergarten were documented. Many benefits would not have become apparent had only reading gains been documented.
Research Question 1

What are the differences in instructional methodology (teacher-directed vs. child-initiated) in a full-day versus a half-day program?

Teacher-Directed Instruction

Teacher-directed instruction was used for a greater amount of time (both absolute and proportional) than was child-initiated instruction in both FD and HD programs. Teachers do not change their fundamental teaching style when provided with additional time; rather, they engage in more of the same basic strategies they have been using all along. Results mirror findings of class-size studies which found that smaller classes enabled teachers to "teach better, but not necessarily differently" (Anderson, 2002; Finn & Achilles, 1999).

Child-Initiated Instruction

Full-day students spent a significantly greater amount of absolute and proportional time engaged in child-initiated instruction than did students in the half-day program. This is an important finding. Research in child development has shown that children benefit from initiating and regulating their own learning activities and interacting with peers (Bredekamp & Copple, 2002, p. 10). The increased use of child-initiated activities in the FD program allowed for the implementation of a more developmentally appropriate program (DAP) than was implemented in the HD program. Child-initiated activities provide increased opportunities for children to learn through active exploration and to draw on direct physical and social experiences to construct their own understandings of the world around them through interactions with adults, peers, and materials (Bredekamp & Copple, 2002).

Results of this study replicate and strengthen results from previous research that found that additional instructional time in FD kindergarten, when compared to other
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<td>Walston &amp; West, 2004</td>
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<td>Context of majority of teacher-parent interactions in FDK are social in nature</td>
<td>Importance of parental involvement in education:</td>
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<td>Danielson, 2002</td>
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<td>Littky, 2004</td>
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<td>Teachers perceived that FDK provides time to:</td>
<td>Elicker &amp; Mathur, 1997</td>
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<td>• Teach to mastery</td>
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<td>Present Study Findings</td>
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<td>Teachers report less stress and frustration</td>
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<td>Teachers report students better prepared for first grade</td>
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<td>Use of more developmentally appropriate practices (DAP) in FDK</td>
<td>Ellicker &amp; Mathur, 1997</td>
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<td>Greater gains in reading achievement in HDK than in FDK</td>
<td>No increase in academic achievement in FDK: Evans &amp; Marken, 1983 Savitz &amp; Drucker, 1984 Students in HDK scored significantly better on comprehension measures: Holmes &amp; McConnell, 1990</td>
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<td>Alignment between intended curriculum and implemented curriculum in FDK</td>
<td>Importance of alignment between intended and implemented curriculum: Marzano, 2003</td>
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<td>Present Study Findings</td>
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<td>increased parental satisfaction with FDK</td>
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<td>Elicker &amp; Mathur, 1997</td>
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<td>Equivalent of 85 additional days of instruction in FDK than in HDK</td>
<td>Influence of time on achievement: Aronson, Zimmerman &amp; Carlos, 1999 Marzano, 2003</td>
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<td>Decreased referrals to basic skill instruction</td>
<td>Slavin et al., 1994</td>
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<td>No negative effects of FDK</td>
<td>Plucker et al., 2004</td>
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arrangements, often results in greater use of child-initiated activities which are believed to be conducive to the needs of young children (Cyan et al., 1992; Elicker & Mathur, 1997; Hardy, 1993; Hough & Bryde, 1996; Martinez & Snider, 2001) and provide a more developmentally appropriate program (Rothenberg, 1995).

**Teacher-Directed and Child-Initiated Instruction**

Three decades of literature on time and learning have demonstrated the relationship between time and student achievement (Aronson, et al., 1999; Marzano, 2003). Comparison of mean amounts of time engaged in teacher-directed and child-initiated instruction indicates that students in the FDK program spent 125 additional minutes per day engaged in teacher-directed and child-initiated instruction than did students in the
HD program. Thus, students in the FD program spent 625 additional minutes per week, 2,500 additional minutes per month, and 25,000 additional minutes per year engaged in teacher-directed and child-initiated learning activities. Dividing the total number of additional minutes per year by the total number of minutes available for instruction in a school day [25,000 ÷ 296 (395 – 60 minutes lunch/recess + 40 minutes specials)] shows that students enrolled in the district’s FD kindergarten program obtained the equivalent of 85 additional days of instruction per year when compared to students in the HD program. Further research is necessary to document more fully any long-term benefits of this additional instructional time on student achievement.

Research Question 02
How do the following classroom structures differ in full-day as compared to half-day kindergarten: large-group active; large-group listening; small-group; individual instruction; free play; cooperative learning activities; learning-centers; individual-creative activities; snack; transitions?

Teacher-Directed Structures

Large-group active and large-group listening. Teacher-directed large-group active instruction and large-group listening accounted for the greatest amount of time, in absolute and proportional terms, in both the FD and HD programs (FD: \( M = 77, 26\% \); HD: \( M = 81, 36\% \)). Results are consistent with effective school research which found that teachers in effective schools allocated a significant amount of classroom time to instruction in essential content and skills and that students in effective schools are engaged in large-group, teacher-directed, planned learning activities for a large percentage of this time (Association for Effective Schools, 1996).

Qualitative differences were found in the focus of large-group listening in the full-day as compared to the half-day program. In the FD program, large-group listening was
used mainly for reading stories to students and, to a lesser extent, to transition into the next activities. In the HD program, large-group listening was used to review and reinforce class rules and routines and to resolve social problems/conflicts. Results indicate more time spent engaged in instructional events in the FD program compared to institutional (procedural) events in the HD program.

*Small-group instruction.* Small-group instruction was used in the FD program, but was not observed in the HD program. Full-day teachers used both ability level and flexible groupings to provide instruction and remediation. These findings support and strengthen previous findings by Plucker et al. (2004) that additional instructional time in FD programs resulted in greater use of grouping strategies including ability-level and mixed ability-level grouping.

*Individual instruction.* Quantitatively, no significant difference was found between FD and HD programs in the use of individual instruction. Qualitatively, significant differences were noted in the content of individual instruction. Full-day teachers used individual instruction to provide one-to-one instruction, remediation, and assessment of students, whereas half-day teachers used individual instruction for completion of worksheets that supported and reinforced concepts taught explicitly during large-group instruction.

The content of individual instruction in the full-day program adheres to guidelines established by the National Association for the Education of Young Children (NAEYC). These guidelines state that assessment of individual children's development and learning is essential for planning and implementing appropriate curriculum and instructional strategies that meet the needs of each child (Bredekamp & Copple, 2002, p. 21). Effective school research also indicates that in effective schools, student progress is measured frequently using a variety of assessment procedures and that assessment results are used to improve individual student performance and to make program improvements (Association for Effective Schools, 1996).
The context of individual instruction in the HD program did not adhere to NAEYC guidelines. The use of worksheets has been found to be a developmentally inappropriate practice (Bredakamp & Copple, 2002).

Child-Initiated Structures

Teachers in the FD program spent more time and used a greater variety of child-initiated structures than did teachers in the HD program. Full-day teachers used free play, cooperative learning, and individual creative structures. No instance of learning centers, cooperative learning, and individual creative structures was observed in the HD program.

Free play. Free play indoors and free play outdoors were used by both FD and HD teachers. Qualitative differences were noted in the use of free play indoors in the FD as compared to the HD program. In the full-day program, in addition to recess, students engaged in free exploration for 30 minutes daily. During free exploration, students were allowed to choose between “open” learning centers. Centers were changed weekly based on student interest and input. Opportunities for free exploration are critical as they enable students to interact socially with peers and to engage in role playing and/or cooperative activities. Brain-based research has found that role playing and cooperative projects make learning more meaningful and memorable, thereby facilitating long-term retention (Sylvestre, 1995).

Learning centers/cooperative learning/individual creative. The use of learning centers, cooperative learning, and individual creative activities was observed in the FD program but not in the HD program. These structures foster cognitive, social, and emotional development; therefore, their absence in the half-day program is concerning as elementary-aged children need first-hand, physical experiences to grasp ideas. Learning centers, cooperative learning, and individual creative structures provide opportunities for children to form hypotheses about the world around them and to test these hypotheses.
through social interactions and physical manipulation (Bredekamp & Copple, 2002, p. 13). These structures also provide students with opportunities to interact with peers, thereby developing and enhancing social skills. Students who fail to develop a minimal level of social competence are at-risk for dropping out of school and/or developing mental health problems later in life (Bredekamp & Copple, 2002).

Other

Transitions: The HD program lost more instructional time as a result of transitions than did the FD program. In the HD program, 31% of the time available for instruction was spent in transitions compared to 15% in the FD program. Projecting outward, 61 instructional days are lost per year in the HD program on transitions compared to 29 instructional days lost per year in the FD program. Lost instructional time is critical because student time on task is an important resource for student achievement.

Time spent in transitions, combined with teacher comments recorded during monthly grade-level team meetings, suggest that direct, explicit instruction and reinforcement of class rules and routines at the beginning of the school year in the FD program resulted in less disruptive student behavior in the FD program than in the HD program. Attention to establishing class routines in the beginning of the school year enabled the students to engage in more on-task behavior as the school year progressed, thus allowing teachers to plan and implement coherent lessons that resulted in seamless transitions. These results validate previous findings from class-size studies (Achilles, 2002) and research on effective use of time which found that the extra time devoted to establishing class rules and routines improved classroom management, thereby reducing instructional time lost to disruptions or disciplinary actions (Armonson et al., 1999).
Research Question #3

What are the differences in content of instruction (reading, writing, math, science, social studies) in both absolute and proportional terms, in a full-day versus a half-day program?

A more balanced academic program was provided in the FD program than in the HD program. While reading instruction consumed the greatest amount of time in both programs, students in the FD program were provided with a greater amount and more consistent instruction in writing, math, science, and social studies than were students enrolled in the HD program. Full-day students were exposed to an average of 27 more minutes of writing instruction, 25 more minutes of math instruction, and 31 more minutes of science/social studies instruction each day.

Since the release of *Prisoners of Time* in 1994 by the National Commission on Time and Learning, the use of time in school has come under increasing scrutiny (Metzker, 2003, p. 1). The need for time and its impact on student achievement has been well documented in the research literature (Marzano, 2003). Time on task can enhance student achievement. The amount of time that students are actively engaged in learning activities (on-task time) has been positively correlated with increases in student achievement (Aronson et al., 1999). Not just the amount of time provided, but how time is spent makes a difference in student achievement (Aronson et al., 1999). Students need not only the time to learn, but also the opportunity to learn (Marzano, 2003).

Consequently, what a teacher covers in class exerts a substantial bearing on what is learned (Anderson, 2002, p.52). In the FD program, students are provided with the opportunity to learn and master subject content material.

District students are not scoring as high as one would expect on the third-grade state standardized test (ASK-3) in the area of writing and math. Parents have expressed concerns and are looking to district administrators for answers. Long-term academic gains as a result of the additional time FD students are engaged in math and writing instruction
will be more fully determined by comparing future ASK-3 scores obtained by students in Cohort 1 (HD) to future ASK-3 scores obtained by students in Cohort 2 (FD).

Research Question #4

How do teacher-student communicative exchanges (procedural, social/behavioral, instructional) differ in full-day as compared to half-day kindergartens?

Hattie (as cited in Marzano, 2003, p. 37) stated, “The most powerful single modification that enhances achievement is feedback.” Instructional comments accounted for the majority of individual teacher-student communicative exchanges (70%) in the FD program as compared to a very small percentage of teacher-student communicative exchanges (10%) in the HD program. Comments recorded on ECCOS indicated that FD teachers provided direct, instructional feedback to students that satisfied both requirements established by research for effectiveness; it was timely and content specific (Marzano, 2003). In view of the impact of feedback on student achievement, the substantial lack of engagement in instructional communicative exchanges in the half-day program is of concern.

The percentage of social/behavioral (55%) and procedural (35%) communicative exchanges in the HD program, as compared to the FD program (social/behavioral: 25%; procedural: 5%) suggests issues with classroom management and student behavior in the HD program. These findings are supported by quantitative data which indicated that students in the half-day program spent 31% of available instructional time in transitions.

Comments on ECCOS (Ellicker & Mathur, 1997) indicated a qualitative difference between the content of social/behavioral communicative exchanges in the FD as compared to the HD program. In the FD program, social/behavioral comments were instructional in nature and directed at facilitating student engagement in “conflict resolution strategies.” In the HD program, the focus of the social/behavioral comments
involved redirecting or disciplining students who were exhibiting inappropriate classroom behaviors.

Results obtained in the present study mirror results obtained by Kiser-Kling (1995). In a comparative study of size in first-grade classrooms of 1:14 and 1:23 class sizes, pre-post measures demonstrated consistency in the amount of on-task, instructional comments in small classes \( (n = 14) \) (82% vs. 84%) as compared to significant decreases in the amount of on-task, instructional comments in larger classes \( (n = 23) \) (79% vs. 67%). A decrease in the amount of institutional events was found in smaller classes (17% vs. 15%); conversely, an increase in institutional events was found in larger classes (21% vs. 31%). The increase in institutional communication in the larger classes indicated “increased need to remind students of rules and procedures and to enforce discipline thus leaving less time for instruction” (Kiser-Kling, 1995, p. 93). Results indicated that in larger classes, one third of the available time was spent on non-instructional events, as compared to smaller classes, where only 15% of the time was spent on non-instructional events. On-task communication was observed 84% of the time in small classes as compared to 67% of the time in large classes. These results are important in view of the fact that on-task communication is the key to student achievement (Kiser-Kling, 1995, p. 93).

Using Kiser-Kling’s definition of instructional communication, the social/behavioral communicative exchanges observed in full-day classes would be coded as instructional events. Thus, in full-day classes, instructional comments would account for 95% of individual teacher-student communicative exchanges. Procedural comments, which would be coded as institutional events by Kiser-Kling, represent only 5% of the individual teacher-student communicative exchanges and would indicate that transitions in the full-day program were seamless allowing for more on-task communicative exchanges. These results parallel results obtained by Kiser-Kling in small classes.
Conversely, off-task communicative exchanges were greater in the half-day program (90%) than found in the large classes by Kiser-Kling (1995).

Research Question 95
How does teacher-parent contact differ in full-day versus half-day kindergarten?

Teacher-parent contact in the full-day program was predominantly social (64%). Social contacts included arranging for parents to volunteer in class, assist with class activities, chaperone trips, read to the class, discuss a special holiday tradition and so on. Teachers who taught in the HD and FD programs stated that they knew parents better and had a better understanding of each child’s home life in the FD program. The importance of parental involvement is explicit in the research literature (Marzano, 2003). Children develop and learn in the context of their families and communities. Consequently, establishing relationships with families enables teachers to increase their knowledge of children’s lives outside the classroom and gain an understanding and appreciation of the perspectives and priorities of a child’s family. Engaging families in education “engages each student and activates a built-in support system that works to help both students and teachers do a better job” (Littley, 2004, p. 144).

In the HD program, most teacher-parent contacts were behavioral in nature (72%). Behavioral contacts included discussing inappropriate behaviors and discussing strategies and interventions to address the inappropriate behavior. These results, combined with the number of social/behavioral and procedural teacher-student communicative exchanges (90%), and the percent of time engaged in transitions (31%) suggest that inappropriate classroom behavior continued to be a concern in the HD program well into the school year. Inappropriate classroom behavior results in lost instructional time due to disruptions and/or discipline activities (Aronson et al., 1999).
Research Question #6

What are teachers’ perceptions of the advantages and disadvantages of full-day as compared to a half-day kindergarten program?

The overarching theme that connected all teachers’ comments was time. Full-day and half-day teachers perceived the following advantages associated with a full-day program: time to deliver a developmentally appropriate program, time to teach to mastery, time to differentiate instruction to meet individual needs, time to form and maintain positive parent-teacher relationships, time to develop a sense of community within the classroom, and reduced levels of stress and frustration as a result of sufficient amount of time to implement curriculum. Full-day teachers did not perceive any disadvantages associated with the full-day program, while half-day teachers expressed concern regarding student fatigue.

Developmen tally Appropriate Practices (DAP)

Critics of full-day kindergartens are concerned that a full-day program will result in "curriculum pushdown" and the use of developmentally inappropriate practices that will increase student stress. Quantitative and qualitative findings in this study do not support these concerns. Observational results indicated the use of more developmentally appropriate instructional methodologies and structures in the FD program as compared to the HD program. These results are echoed in teacher comments that indicated an awareness of DAP and a conscious effort to implement these practices within both the FD and HD kindergarten programs. Teachers stated that while they tried to provide a balance between teacher-directed and child-initiated learning in both the FD and HD programs, they were only able to do so in the full-day program as a result of the additional time available.
In the full-day program, child-initiated structures such as play time and free exploration were built into the daily schedule to enable students to construct their own knowledge through interactions with individuals and materials in the environment. Half-day teachers indicated that they relied heavily on teacher-directed instruction versus child-initiated instruction to keep students on-task and focused to ensure coverage of concepts contained in the curriculum.

Research on play indicates that it is an important part of the lives of young children and has pervasive and interconnected implications for education (Rothenberg, 1995). Currently, educators are focusing attention on imagery and metacognition as a means to enhance children’s thinking skills (Rothenberg, 1995). For young children, imagery is an early form of symbolic representation in activities such as sociodramatic play. Metacognition, or self-awareness about one’s own thinking, develops gradually as children have experiences and receive feedback from their environments. Together, imagery and metacognition lay the foundation for the development of higher order thinking skills essential to creative problem solving (Rothenberg, 1995).

For children, play is a way to provide meaningful learning, as well as fostering cooperation with others. Vygotsky believed that child development is the result of interactions between children and their social environment (Leong & Bodrova, 2003). Children are active partners in these interactions, constructing knowledge, skills, and attitudes and not just mirroring the world around them (Leong & Bodrova, 2003). Vygotsky felt that learning could lead development if it occurs within the child’s zone of proximal development (ZPD). According to Vygotsky, the ZPD contains skills and concepts that are not yet fully developed but are on the edge of emergence (as cited in Leong & Bodrova, 2003). Skills and concepts within their ZPD take different forms for children of different ages. For instance, fostering make-believe play with preschoolers could provide the same support that formal instruction offers for older students.
Therefore, rather than being viewed as non-instructional time, play must be considered instructional time in the kindergarten curriculum.

Teach to Mastery

In the full-day program, teachers indicated that they were able to pace instruction to ensure concept mastery and implement structures to assess student knowledge. The knowledge obtained from ongoing student assessment enabled the teachers to determine student mastery of subject area content and to differentiate instruction to meet individual student needs.

Teachers who taught in both the FD and HD programs stated that the additional time available in the FD program enabled them to address concepts on a more consistent basis and provide repeated exposure to material across curricular content areas. Teachers believed that students demonstrated increased ability to internalize concepts and were more prepared for first grade.

Teachers also expressed the belief that the additional time provided in the full-day program provided opportunities to implement structures (small group, individual instruction) and to engage in a variety of instructional strategies that allowed them to differentiate instruction. These findings mirror findings reported in other descriptive studies on teachers’ perceptions of differences in instructional strategies as a function of increased time (Benton-Kupper, 1999).

Study outcomes strengthen previous research findings that additional time available in a full-day program allowed teachers to assess each student individually to determine level of content knowledge and learning style. This knowledge enabled teachers to more effectively plan and instruct lessons that will lead to student success (Beckman, King, & Ryan, 1995).

The additional time available in the full-day program provided more continuity in subject area instruction than was found in the HD program. Full-day teachers were able
to teach lessons to closure, and unlike in the half-day program, there were no observed instances of omitting or shortening a lesson due to time constraints. The ability of teachers to implement and deliver complete lessons resulted in less time devoted to reteaching topics and more time devoted to transfer of knowledge to novel situations.

**Differentiated Instruction**

The additional time available in the full-day program, combined with the smaller number of students a teacher was responsible for, enabled teachers to more fully assess student knowledge, provide early diagnosis and remediation of learning difficulty, and differentiate instruction. The additional time in the full-day program allowed the teachers to "slow down" and more thoroughly assess student understanding and concept mastery. These findings mirror findings from research on block scheduling (Benton-Kupper, 1999) and findings from class-size research (Andersen, 2002).

**Positive Parent-Teacher Relationships**

Full-day teachers reported that, with the smaller amount of students that they were responsible for, they were able to spend the time to "really get to know" the parents of their students. This knowledge enabled them to establish and maintain positive home-school relationships. According to one teacher who had taught in both the HD and FD programs, "Last year (HD) there was no way I was going to be able to know each child's parents. I really wanted to, but with over 40 students I just didn't have the time."

Another teacher who also taught in both programs stated, "Last year I didn't really want the parents in the classroom because I always felt like they were judging me. Now I welcome parents into the classroom. They have all been extremely complimentary and have really helped with a lot of projects."
Home-school relations are one of the correlates of effective schools. In effective schools, parents understand and support the school's basic mission and are provided with the opportunity to play a role in helping the school achieve its mission (Association for Effective Schools, 1996). Qualitative data indicate that FD teachers felt that parents were partners in the educational process and provided enriching experiences to the students. Conversely, HD teachers felt that parents were not very supportive and often assumed an adversarial role.

**Development of a Sense of Community**

The full-day program enabled students to develop a sense of community. In the full-day program, students spent the whole day with each other as compared to the half-day program where students were together for less than 3 hours and then either went home, or transitioned to another setting where they were with another group of students. Engaging in consistent, positive relationships with a limited number of adults and other children is a fundamental determinant of healthy human development and provides the context for children to learn about themselves and their world, as well as how to develop positive constructive relationships with other people. Children learn to respect and acknowledge differences in abilities and talents and to value each person for his or her strengths.

Full-day teachers reported that students evidenced a sense of pride in their classroom space and were anxious to "show off their classroom and work" to parents and visitors. Half-day teachers did not note the same amount of pride in the classroom space and attributed this to the fact that students shared the classroom space with another group of students. Results support previous findings that students in a FD program developed a
sense of ownership and commitment to maintaining the classroom setting because they
did not share the space with other students (Martínez & Snider, 2001).

Recently, there has been a renewed appreciation of the importance of social
context to effective schools (Battistich, Solomon, Watson, & Schaps, 1997). Research
since about 1990 has found that a sense of school community can be enhanced for
students and that it is associated with a wide range of positive outcomes (Battistich et al.,
1997, p. 137). Students have basic psychological needs for belonging, autonomy, and
competence and their level of engagement or disengagement in school is related to how
well these needs are being fulfilled (Battistich et al., 1997). The classroom environment
provides the individual with a focus for identification and commitment. According to
Battistich et al., (1997), “Students’ needs for competence, autonomy, and belonging are
met when they are able to participate actively in a cohesive, caring group with a shared
purpose; that is, a community” (p. 138). Full-day teachers reported that they were able
to develop a sense of community, whereas half-day teachers reported that “students did
not seem to really bond with one another.” When students’ needs are satisfied, they
affectively bond with and become committed to the school and are more likely to identify
with and behave in accordance with the school’s goals and values (Battistich et al., 1997;
Finn et al., 2003).

Sarason coined the term “psychological sense of community” or PSOC to
describe the fundamental psychological need all humans have to be part of a community
(Bateeman, 2002, p. 64). According to Sarason, PSOC includes “the perception of
similarity to others, an acknowledged interdependence with others, a willingness to
maintain this interdependence by giving to or doing for others what one expects from
then, the feeling that one is part of a larger dependable and stable structure (as cited in Charvas, 2004). Developing PSOC in students is critical, as research has shown that a student's sense of community is associated with higher levels of social and academic skills and lower levels of antisocial behavior in the classroom (Bateman, 2002; Battistich et al., 1997; Finn et al., 2003).

The students' sense of community was also enhanced through their interactions with first and third grade "buddy classes." This arrangement promoted a "sense of belonging" and "connection" to the larger school community. Full-day teachers stated that they believe that the connections that the students were making with other grade levels promoted a feeling of "safety" within the school. The importance of a "safe and orderly" environment on student learning has been documented in the literature (Marzano, 2003). If students do not feel safe, they will not have the psychological energy to learn. Consequently, the ability to create a "sense of community" within the classroom and larger school community, where everyone feels welcomed and valued as a member, cannot be underestimated.

Less Stress and Frustration (Teachers)

Teachers who taught in both the full-day and half-day kindergarten program reported feeling less stress and frustration in the full-day program. Teachers attributed this decrease in levels of stress and frustration to the additional time provided in the FD format. Half-day teachers indicated that they frequently felt stress and frustration because they did not have enough time to effectively teach all content area subjects.
Conversely, FD teachers indicated reduced feelings of stress and frustration, combined with increased feelings of satisfaction and self-fulfillment in their role as a teacher.

Stress in teachers can include anxiety and frustration, impaired performance, and strained interpersonal relationships at work and home (Wood & McCarthy, 2002). Monthly grade-level meeting minutes show that HD teachers were close to “burn out”, viewing their work as futile and inconsistent with goals they had set for themselves as teachers. They felt overwhelmed by their work load, inadequate to meet the tasks expected of them, and reported experiencing insomnia and headaches.

Teachers in the FD program reported feeling a level of control over daily challenges and the ability to teach in a manner that was congruent with their perception of teaching and closely aligned with the goals that they had set for themselves as teachers. Full-day teachers reported feeling a “renewed sense of purpose” and “the ability to make a difference in the lives of their students.”

Teacher comments also support research findings that FD kindergarten can lower teacher frustration and stress levels by providing both a fewer number of children to teach and increased time to work with them (Ellicker & Mathur, 1997). Results found in the current study are also consistent with research results that found that FD kindergarten teachers felt less rushed to achieve objectives (Ellicker & Mathur, 1997; Hough & Bryde, 1996).

Less Stress and Frustration (Students)

Teachers also reported lower levels of stress in students as a result of enrollment in the FD program. Student stress manifests itself in poor grades and/or inappropriate
behaviors. Signs of stress in kindergarten students include excessive fears and nightmares, stomachaches and headaches, negativism and lying, withdrawal, regressive behavior, excessive shyness and/or aggression. Teachers who taught in both the FD and HD programs indicated that FD students “didn’t cry as much” during the school day and “had an easier time transitioning between school and home” than did students in the HD program. They reported that FD students “did not make as many trips to the nurse for stomach aches and headaches as did HD students.”

Studies have shown that students who lead a harried life can experience excessive amounts of stress (Flocco, 2004). Students who attend a HD program are often enrolled in one or two additional child-care settings increasing the demands on a child to adjust to different groups of students, adults, and program rules and routines. A FD program decreases the number of school/child care settings that a child must adapt to each day.

Findings from the current study strengthen research results indicating that a developmentally-appropriate FD kindergarten program may reduce stress and improve outcomes for children by offering a consistent, high quality environment of care and education instead of two or three schools or child care placements each day, varying in philosophy and quality” (Elicker & Mathur, 1997, p. 461).

Research Question 47

What are the gains, if any, in reading achievement of students enrolled in a full-day as compared to a half-day kindergarten program?
Gains in Reading Achievement

Independent samples t test results indicated that students enrolled in the HD program (Cohort 1) scored significantly higher on the DRA than did students enrolled in the FD program (Cohort 2). Results of the independent samples t test would suggest that students in Cohort 1 (HD) made greater academic gains in reading than did students in Cohort 2 (FD).

These results need to be viewed within a larger context. Pretest scores were not obtained at the beginning of the school year; therefore, preexisting levels of reading achievement could be a confounding factor. A number of other factors have been correlated with reading achievement including, but not limited to intellectual level, educational level of mother, exposure to a print-rich environment and so on. Such factors would have to be controlled before attributing cause and effect to these findings.

Influence of Preschool on Reading Achievement

Regression analysis indicated that the "number of years of preschool" was a statistically significant predictor of "DRA scores" for students enrolled in the FD program, but not for students enrolled in the HD program. The r values of .058 for the full-day program and .038 for the half-day program suggested the presence of other factors that may be stronger predictors of DRA scores than the number of years of preschool. While outside the scope of this research study, other factors that should be considered include, but are not limited to, cognitive level, prior reading level, parental educational background, and quality of preschool program.
Conclusions

The following conclusions can be derived from study findings:

*Developmentally Appropriate Practices (DAP)*

The full-day program contained more developmentally appropriate practices than the HD program. More structures (learning centers, cooperative learning, individual creative, free exploration, play) were used in the FD program that adhered to the guidelines established by NAECY for DAP. These structures provided opportunities for students in the FD program to learn through active exploration and interaction with adults, peers and materials in their environment.

Students in the half-day program, despite teachers' stated commitment to implementing DAP, engaged in more developmentally inappropriate practices (waiting/transitions, worksheets, and sitting for extended periods of time) than did students in the full-day program.

*Teacher-Directed vs. Child-Initiated Instruction*

In both FD and HD programs, teacher-directed instruction was used for a greater amount of time than was child-initiated instruction. Students in the FD and HD programs spent the same proportional amount of time engaged in teacher-directed instruction. Teachers do not change their fundamental teaching methods when provided with additional time.

The additional time provided in the FD program significantly influences the amount of child-initiated instruction and the types of child-initiated structures used by kindergarten teachers. Students in the FD program had opportunities to engage in small-group instruction, learning centers, cooperative learning, free exploration and individual-creative activities that allowed the students to construct their own knowledge through.
active exploration and interaction with individuals and materials in the classroom environment. Students in the HD program were not provided with similar opportunities to explore their environment actively or to engage in activities affording them opportunities to construct their own knowledge.

_Diagnostic Assessment and Teaching_

Full-day teachers were more diagnostic in their teaching and implemented more interventions and strategies to differentiate instruction to meet individual student needs than did teachers in the HD program. Students in the FD program were provided with one-to-one assessment and remediation/enrichment in one-to-one or small-group settings. Students in the HD program did not engage in ongoing assessment and no instance of one-to-one instruction or small-group instruction was noted.

Eicker (2000) theorized that the reduced number of students that a teacher is responsible for in a FD kindergarten program would enable the teacher to be more diagnostic in assessing student needs and implementing the support and instruction necessary to address cognitive, social, and behavioral delays. Findings from this study validate Eicker’s theory. Full-day teachers spent time each day engaged in one-to-one instruction, assessment, and/or diagnosis/remediation of student needs. While not a component of this study, referrals to basic skills were significantly reduced this school year as compared to the school year in which the pilot study took place. Parents also expressed the belief that teachers “really knew” their child and had confidence that their child’s needs were being met.

_Classroom Behavior_

While behavior of students in the FD and HD program was not directly measured, inferences regarding student behavior can be made from time spent in transitions, comments contained in ECCOS (Eicker & Mathur, 1997), and teachers’ comments
contained in minutes of monthly grade-level meetings. When compared to HD students, FD students exhibited less inappropriate behavior, fewer disruptions, and fewer problems requiring disciplinary referral. The additional time available in the FD program let teachers devote time at the beginning of the school year to teach and consistently reinforce classroom rules/routines and conflict resolution strategies directly. Later in the year, this resulted in increased time available for instruction as time spent in transitions was significantly decreased compared to the HD program. Study findings support previous research findings by Kiser-Kling (1995) and Achilles et al. (1995).

Results obtained in the present study validate and strengthen results from previous research that found that students enrolled in FD programs exhibited more positive behavior than did pupils enrolled in HD programs (Crytan et al., 1992; Wang & Johnstone, 1999). This study did not find, as did Finn and Panizzo (2004) that students in HD classes were better behaved than were students in FD classes. Also, results of this study did not validate results obtained in ECLS-K indicating that students in FD programs were more likely than those in HD programs to exhibit problem behaviors as measured by how often they fight and argue with each other (Walston & West, 2004).

Content of Instruction

A more balanced academic program was provided in the FD program as compared to the HD program. Marzano (2003) stated that “a guaranteed and viable curriculum” has the most impact on student achievement (p. 22). According to Marzano a “guaranteed and viable curriculum” is primarily a combination of “opportunity to learn” (OTL) and “time” (p. 22). Students cannot be expected to do well on subject area tests/assessments if they have not had the opportunity to learn the concepts and/or the time to adequately cover the topic in depth. A major benefit of FD programs is that students have both the “time” and “opportunity to learn.” An additional benefit of FD programs is that teachers have both the “time” and “opportunity” to teach.
Reading

The greatest amount of time in both the FD and HD program was spent engaged in reading instruction. Reading is a skill highly valued in the school district that is the focus of this study. Consequently, the finding that students were engaged in reading instruction for the same absolute amount of time in the FD and HD programs was not surprising. Parents in this school district have high expectations for their children; therefore, they place high demands on teachers and judge the quality of the kindergarten program on student reading achievement.

Although statistically significant gains in reading were found for students enrolled in HD kindergarten when compared to students enrolled in FD kindergarten, caution is raised regarding the use of this finding as a basis for future district decisions regarding the continuation of FD kindergarten. The statistically significant gains found in this study are not considered a valid indication of the impact of program type on student reading. A review of DRA scores obtained by students in the half-day program indicated the presence of two outliers (DRA level 30 and DRA level 40). An independent samples t-test was conducted to determine the impact of these two outliers. The mean DRA score for full-day students (5.10) was compared to the mean DRA score for half-day students minus the two outliers (6.35) resulting in a mean difference of -1.25. The t-value (-1.597) was negative indicating that the mean for half-day students was greater than the mean for full-day students. The significance (2-tailed) at \( p = .112 \) was not statistically significant \( (p > .05) \). This finding is not surprising when you consider that students were engaged in reading instruction for the same absolute amount of time in both the FD and HD programs. Additionally, research findings indicate that literacy is largely a product of a child’s home environment; therefore, measures other than reading may have indicated statistically significant academic gains as a function of program type. For example, Sanders has posited that academic gains in math would be a more valid indicator of academic gains as a function of program type than reading gains as gains in math depend
more than gains in reading on effective instruction in school (as cited in Rothstein, 2004, p. 63).

Influence of Prior Preschool on Reading Achievement

Results of influence of prior preschool on reading achievement are mixed. While a linear relationship was found between number of years of preschool and DRA scores for students enrolled in the FD program, no linear relationship was found for students enrolled in the HD program. In an affluent and non-disadvantaged school district, factors other than number of years of preschool influence reading achievement. The quality of preschool programs was not ascertained in this study so it is difficult to determine whether the preschool enrollment reported by parents was in a preschool or child-care setting.

Writing, Math, Science/Social Studies

Full-day students were exposed to a greater amount and more consistent instruction in all academic areas. When compared to the HD program, significant differences were found in the amount of writing, math, science, and social studies instruction, in both absolute and proportional terms, in the FD program.

Intended Curriculum/Implemented Curriculum

The extra time available in the full-day program enabled teachers to implement lesson plans as written; therefore, “intended curriculum” (lesson plans) were closely aligned with “implemented curriculum” (instruction). Much can be learned by observing programs in action. Observations reveal differences between how a program is running and how it was intended to run (Harman, Egeland, Høed, & O’Connell, 2002). Data collected in this study point to a discrepancy between “intended curriculum” and “implemented curriculum” in the HD program. Although teachers set up classrooms and
structured the school day in much the same way in both programs, in reality only the FD teachers were able to adhere to their daily lesson plan. Half-day teachers were often forced to omit or severely shorten content-area instruction because of time constraints, thereby resulting in a situation where students were not given the “opportunity to learn” (OTL) and teachers were not given the opportunity to teach (OTT). This finding is significant. Previous researchers have used lesson plans to document amount and content of classroom instruction. The difference found by this researcher between intended curriculum and implemented curriculum in the HD program should give researchers pause when using lesson plan books as a data source.

Teacher-Student Communicative Exchanges/Comments

Teachers in the FD program provided more instructional comments than did teachers in the HD program. Instructional comments in the FD program were content specific and provided timely feedback that has the potential to improve student achievement. In the half-day program teachers provided more social/behavioral and procedural comments than did teachers in the FD program. Communication in the HD program focused on redirecting inappropriate behavior or reinforcing class routines.

Teacher-Student Relationships

Teachers stated that the additional time available in the FD program, combined with the fewer number of students that they were responsible for, enabled them to establish a more personal relationship with each student. Time was allocated each day to discuss topics of interest with individual students.
Parent-Teacher Relationships

The additional time provided in the FD program allowed teachers to devote time to learn about each student’s family. This knowledge assisted the teachers in forming positive home-school relationships. Half-day teachers indicated that they did not have enough time in the school day to “really learn” about each student’s family.

Despite forming more positive home-school relationships, FD teachers did not contact parents to report positive academic or social achievements. Telephone calls and e-mails focused on “housekeeping” items such as setting up time to assist with classroom projects, read to the class, chaperone class trips, and so on.

Teachers’ Perceptions of Advantage(s) and/or Disadvantage(s)

Teachers perceived numerous advantages and no disadvantages associated with the FD program when compared to the HD program. Teachers stated that the FD program provided time to deliver a developmentally appropriate program, to teach to mastery, to differentiate instruction to meet individual needs, to maintain positive parent-teacher relationships, to develop a sense of classroom community, and to reduce levels of stress and frustration in both teachers and students.

Parental Satisfaction

Parental attitudes and level of satisfaction with FD versus HD kindergarten were not obtained in this study. However, anecdotal evidence (notes from school planning team meetings, phone calls to principal, parent comments) suggested that parents were very satisfied with the FD program and believed that it benefited their child both academically and socially. These findings provide support for and strengthen previous research that found increased levels of parental satisfaction with FD programs (Ellicker & Mathur, 1997; Hough & Bryde, 1996).
Negative Effects of Full-Day Kindergarten

This study validates and strengthens previous research that did not find any negative effects associated with enrollment in FD kindergarten. Critics of FD kindergarten have cited concerns that FD kindergarten would increase student stress through the introduction of inappropriate curriculum approaches (Bredekamp & Copple, 2002) and tax the stamina of less mature children who may become overly tired (Fusaro, 1997). Neither quantitative nor qualitative data obtained in this study validated any increase in student stress level or fatigue as a result of enrollment in the FD kindergarten program.

Full-Day Results Compared to Class-Size Results

"Nonexperimental research is an important and appropriate mode of research in education" (Johnson, 2001, p.3). In education it is difficult to design a randomized experiment or quasi-experiment in view of the number of independent variables that the researcher may have no control over such as class size, length of school day, learning styles, parenting styles, and so on. Results of this study mirror results of class-size studies that teachers of small classes employ a wider variety of instructional strategies/activities, evidenced more positive attitudes and better classroom management and discipline. Students in small classes also developed better social skills, mastered more subject matter content, and engaged in more creative and divergent thinking processes (Cavanaugh as cited in Achilles & Fina, 2002). Small classes were also found to be more cohesive than large classes with individual students feeling a greater sense of bonding, or PSOC, with classmates (Fina et al., 2003; Finn & Pannozzo, 2004).
Recommendations

Policy

While the study found significant gains in mean DRA scores of students enrolled in the HD program when compared to mean DRA scores of students enrolled in the FD program, administrators are cautioned against using this information as the sole basis for providing HD or FD programs in subsequent school years. The statistical analysis did not control for factors that strongly correlate with reading achievement (cognitive ability, maternal level of education, exposure to a print-rich environment, etc.), nor did it control for the presence of two outliers in the half-day program data.

Although caution is needed in making policy decisions based on the results of this one full-day versus half-day kindergarten study, results support the continuation of full-day kindergarten for all district students. Although significant gains in reading as a function of program type were not demonstrated, by focusing on program content and program processes a number of benefits of FD kindergarten as compared to HD kindergarten were documented and provide the foundation for a recommendation that the district continue its FD kindergarten program.

In the full-day program, students spent a greater amount of time in both teacher-directed and child-initiated learning throughout the school day than did students enrolled in a half-day program. The additional time spent daily in learning activities equaled to 25 more days of instruction per year for students enrolled in the FD program, when compared to students in the HD program and allowed teachers to explore topics in depth and to modify the pace of instruction based on student need. Research has indicated that time provided to remediate achievement gaps in the early grades will result in future cost savings to districts in terms of referrals to special education and/or provision of basic skills instruction (Stavin, 2004).
Second, full-day kindergarten allowed for the implementation of developmentally appropriate practices. Observations in both the FD and HD classrooms documented the greater use of child-initiated instruction and child-initiated structures in the FD program than in the HD program. In the FD program, more time was provided for students to engage in free exploration of the classroom and more teacher time was devoted to helping children complete challenging tasks than in the HD program. Students in the FD program had time, on a daily basis, to engage in child-to-child interactions. In the FD program, periods of active engagement (physical movement, singing, and dancing) were alternated with seatwork to maintain optimal levels of student engagement. Conversely, students in the HD program were observed either seated on the rug or seated at their desks in large-group teacher-directed activities.

Third, FD kindergarten in a small-class setting allows for the development of positive and nurturing teacher-student relationships. These relationships are critical in forming and shaping a student’s path in school (Piasta, 2000, p. 17). According to Piasta, “Relationships with teachers are an essential part of the classroom experience for all children and a potential resource for improving developmental outcomes” (p. 21). Student-teacher relationships can regulate a child’s experience in classroom settings. These relationships can stabilize his/her emotional experiences in the classroom, provide structure and assistance with peer interactions, provide a sense of security to support his/her exploration and mastery, and provide interactions that help shape his/her ability to self-regulate behavior (Piasta, 2000). The ability of teachers to form these supportive relationships is enhanced in a FD program where teachers are responsible for a fewer number of students and spend a greater amount of time getting to know each student, thereby enhancing the teacher’s ability to offer more frequent and behavior-specific individualized feedback.

Fourth, in a synthesis of factors that influence learning, Wang et al. (1990) found that classroom climate variables were as important as individual student characteristics.
Classroom and instructional practices found to enhance positive learning outcomes included effective classroom management, quantity and quality of instruction, positive and productive student-teacher interactions, a classroom climate conducive to learning, and a peer culture supportive of academic achievement (Wang et al., 1990). Positive student outcomes were associated with cooperative, cohesive, goal-directed classrooms in which a variety of educational approaches and activities are employed (Wang et al., 1990). Teachers in the FD classrooms reported a great sense of community within the classroom with students supportive of each others' learning. Observations of FD programs documented increases in “on-task” behaviors and decreases in “off-task” and disruptive behaviors. Full-day teachers spent more absolute and proportional time establishing and reinforcing behaviors essential for school success (i.e. following directions fast time delivered, adhering to routines, working independently, organizing materials and personal space, quiet waiting etc.). Attention to rules/routines at the beginning of the school year resulted in increases in time-on-task later in the school year.

Fifth, administrators need to consider the reduced levels of perceived stress and frustration experienced by teachers in the FD program when compared to teachers in the HD program. Research has documented that the individual decisions made by teachers (instructional strategies, classroom management, classroom curriculum design, etc.) have a far greater impact on student achievement than do decisions made at the district level (Marzano, 2003). Therefore, district leadership should be aware of potential teacher “burn out” associated with teaching in the HD program and the impact that high levels of teacher stress can exert on student achievement.

Sixth, classroom observations documented the delivery of a “guaranteed and viable” curriculum in the full-day program. In the FD program, children were engaged in direct instruction of reading, writing, and math on a daily basis. Science and/or social studies were taught twice a week; however, science and/or social studies concepts were reviewed, reinforced, and applied across curricular content areas on a daily basis.
Significant concern is raised regarding the quality of the education experience that students received in the HD program. Classroom observations and teacher comments indicated difficulty offering a "guaranteed and viable" curriculum in the HD program. Curriculum areas were not consistently or equally addressed.

Administrators need to consider the potential long-term impact that lack of meaningful student engagement in all curriculum areas could have on student achievement. In the district that is the focus of this study, the impact may already be documented when you consider that for the past three school years school goals have included math and writing and student scores on standardized tests administered in third grade are lower than expected. How much of these deficits are a result of a poor foundation established in kindergarten can only be surmised at this point in time.

Practice

Kindergarten teachers should be made aware of the results of this study so that program improvements can be made. Specifically the teachers will be made aware of the following findings:

First, observations in the HD program determined that the teachers were presenting a developmentally appropriate program that provided opportunities for academic, social, and emotional development of each child. Although developmentally appropriate, instruction still relied heavily of teacher-directed learning (49%) as opposed to child-initiated learning (28%). Teachers should be encouraged to develop lessons that increase the amount of time students are engaged in child-initiated activities specifically, learning centers, cooperative learning and individual-creative activities.

Second, the negative impact of time spent in transitions on instruction should be discussed. Teachers should be encouraged to establish class rules and routines at the beginning of the school year so that instructional time is not decreased as a result of off-task and/or inappropriate behavior as the school year advances.
Third, teachers should be encouraged to continue to engage in point-of-performance instruction in social skills and conflict resolution strategies. Direct, explicit instruction in these areas assists students to develop prosocial skills that are a prerequisite to school success. Teachers should also be encouraged to continue to develop supportive, positive, and nurturing teacher-student relationships as these relationships enhance student developmental outcomes.

Fourth, teachers should be encouraged to increase the number of parent contacts that are positive in nature and provide information regarding student academic or social achievements. Teachers should also be encouraged to increase the number of activities that foster communication and connect with the surrounding community.

Fifth, there was a lack of alignment between the intended curriculum and the implemented curriculum. This finding has important implications for building administrators. To ensure alignment between intended curriculum (lesson plans) and implemented curriculum (what is actually taught) administrators should conduct on-going classroom observations in addition to review of lesson plan books.

Serendipitous Findings

While parental satisfaction and perceptions of the advantages and/or disadvantages of FD as compared to HD kindergarten were not measured in this study, review of statements recorded during informal meetings between kindergarten parents whose children attended both the FD and HD kindergarten program, kindergarten teachers, and district leadership suggest that parents were very satisfied with the FD program. They reported feeling “a closer relationship with the teacher” and “less stress worrying about their child when they were at work.” Parents indicated that they believed their child was “better prepared for first grade,” “academically achieved at higher levels,” and “studied more topics in depth” in the FD program. Parents also reported that their child “seemed to make more friends” and “played better on play dates” than their other child (children)
who attended the HD program. Comments in this study were similar to research results that documented parental perception of FD as compared to HD programs (Elicker & Mathur, 1997; Hough & Bryde, 1996).

_Cautionsary Statements_

Efforts to provide kindergarten programs that give children an optimal environment for academic, social, and emotional growth include decreasing class size and moving from half-day to full-day kindergarten. These two strategies could have substantial costs but are aimed at increasing the time and personal attention available to each student (Yan & Lin, 2004). In the present study, many of the benefits noted in the full-day program are also associated with small class size. It is not known if the benefits associated with FD kindergarten would continue if class size were increased.

District leadership must continue to provide kindergarten teachers with the support that they need to continue to offer a developmentally appropriate program that addresses a child’s cognitive, social, and emotional development in the face of parental demands that the program become more academic. The parents in the district where the study occurred are well educated and very involved in their child’s education. They want the best academic outcomes for their child; consequently, they are extremely demanding and critical of curriculum that they consider not “rigorous” enough. To increase parental understanding of the benefits of providing a developmentally appropriate program this district should offer a series of parent workshops that review developmentally appropriate practices, demonstrate the various ways that curriculum is integrated throughout the school day, and focuses parent attention on the long-term academic benefits of addressing children’s social and emotional development in the kindergarten curriculum.

While supportive of the school, some town inhabitants have recently become victims of restructuring in their own employment, or have seen their investments reduced dramatically in the economic downturn. Families are struggling to maintain their
homes and lifestyles; therefore, they are closely scrutinizing the school budget to minimize its impact on property taxes. To pass a school budget that continues to fund an FD kindergarten, parents must actively support this option. To ensure continued parental and community support, parents and community members must be welcomed into the classroom. Kindergarten teachers and district administrators should use every available opportunity to showcase the program. Activities and structures, such as "grandparent reading," can be established to elicit support from seniors who often vote as a block against the school budget.

Recommendations for Further Study

The absence of pre-test scores limited the ability of this researcher to demonstrate reading gains as a function of program type. Pre-post comparisons would help control for other factors such as cognitive ability, number of years of preschool, and prior reading ability. A future study should include both pre and post measures of reading achievement.

Observational results indicated that the same amount of time was spent on reading instruction in both the FD and HD programs. Therefore, using reading to demonstrate gains as a function of additional time available in the FD program will obscure other academic gains. Results obtained in this study indicate that writing, math, science and social studies were not taught on a consistent basis in the half-day program. Perhaps, valid measures of academic gains in FD as compared to HD kindergarten would include measures of gains in writing, math, science, and social studies. A future study should use pre-post curriculum aligned measures of student knowledge base in writing, math,
science, and social studies to determine gains in subject area knowledge as a function of program type.

Research indicates that early intervention and remediation results in reduced number of referrals to basic skill instruction and special services. To determine if the additional time available in a FD program enabled the teachers to identify and remediate academic delays, a longitudinal study should be implemented to determine if there is a reduction in the number of referrals to the Academic Tutorial Program and/or referrals to Child Study Team.

With increased demand for student outcomes placed on school districts (e.g., No Child Left Behind Act) a long-range study should be implemented to determine if there are any statistically significant gains in literacy, math, and science as measured by the New Jersey test of Academic Skills and Knowledge (ASK-3) administered in third grade for students who were enrolled in FD kindergarten, as compared to students who were enrolled in HD kindergarten.

One of the benefits associated with FD kindergarten is increased readiness and an easier transition to first grade. To determine if research results apply to students in this school district, a survey should be administered to the first-grade teachers to determine their perceptions of the academic readiness of students in Cohort 1 (half-day) to students in Cohort 2 (full-day) as well as to follow test outcomes of the groups in later grades.

Parent satisfaction is a variable in continuing any new program, especially one that could need tax dollars. Valuable information regarding program satisfaction and suggestions for program improvement can be obtained by conducting a parent survey. Of particular interest would be the perceptions of parents who had students in both the HD
and FD programs of the advantage(s) and disadvantage(s) of the FD kindergarten program in terms of academic, social, and behavioral development.
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Appendix A

Verbal Script
Hello, my name is ________, and I am the research assistant for Linda Freda. Mrs. Freda is a doctoral candidate in the Educational Administration program at Seton Hall University and is conducting a study for the purpose of program evaluation of half-day kindergarten as compared to full-day kindergarten.

Some of you participated in the pilot study last year that collected data on the district’s half-day kindergarten program. We are asking for volunteers to participate in this follow-up study on full-day kindergarten.

Your participation in this study is strictly voluntary. You may withdraw from the study at any time with no penalty or loss of benefits to which you are entitled. If you participate in the study you will be assigned a number so that your identity will be kept confidential. I will be the only person who will have access to the coding sheets and data collected in the study. The coding sheets and data will be kept in a locked file cabinet in my home.

Please read the Informed Consent Form which I have given to each one of you. This form will more fully describe the study. Please feel free to ask me any questions that you may have as you read the Informed Consent Form.

If you wish to volunteer to participate in the present study please indicate your consent by signing the Informed Consent form. As previously discussed, I will be the only individual who will know who has volunteered to participate in the study.
Appendix B
Informed Consent
INFORMED CONSENT FORM

Affiliation with Seton Hall University
My name is Linda Freha and I am a doctoral candidate in the Educational Administration program at Seton Hall University.

Explanation of Research and Duration of Participation
This action research field study is designed to collect data for program evaluation. Data collected in this study will be compared to data collected in the pilot study (2003-2004) and will form the basis for program improvement, as well as for future district funding and policy decisions. Program observations will be conducted over a two month time period.

Description of Procedures
To complete this research, my research assistant will be observing kindergarten classroom structures, practices, and activities in March and April 2005. The research assistant will use an observation form to record data and she will be observing in each classroom for a total of 540 minutes. No observations will be conducted during specials or lunch.

You will be asked to complete a teacher-student interaction log in April, 2005. This log will be used by the research assistant to determine the form and content of parent-teacher contact in half-day kindergarten as compared to full-day kindergarten.

Participation is Voluntary
Your participation is strictly voluntary. You may discontinue at any time at no penalty or loss of benefits to which you are entitled. Any data collected from you will be destroyed.

Protecting your Identity
You will be assigned a number so that your identity will be kept confidential.

Confidentiality of Data
The coding sheet that contains your name and corresponding number, as well as all data collected during the study will be kept in a locked file cabinet in the research assistant's home. No individual, other than the research assistant will have access to the research data or the coding sheets.

All research data will be kept in a locked file cabinet in the research assistant's home for three years following the conclusion of the study.

Risks or Discomforts to Subjects
There are no anticipated risks or discomfort to subjects.
Benefits from Research
The data obtained will be used for program evaluation to form the basis for future district policy and funding decisions regarding the benefits of full-day as compared to half-day kindergarten.

Contact Information
If you have any questions regarding this study, you can contact the research assistant, Mrs. Robyn Battato at 973-701-1634, or my mentor at Seton Hall University, Dr. Charles Achilles at 973-275-2661.

Copy of Informed Consent Form
You will be provided with a signed and dated copy of the Informed Consent Form.

I have read the material above, and any questions I asked have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time.

_________________________   _______________________
Subject                        Date
Appendix C

Early Childhood Classroom Observation System

ECCOS
Early Childhood Classroom Observation System

**Teacher-Directed Activities** (Primarily teacher-initiated and teacher structured)

**LGA Large Group-Active**
Led by teacher; more than 10 children. Child is active (either talking or doing) more than 50% of the interval. Examples: singing/movement, physical exercise, unison chanting.

**LGL Large Group-Listening**
Led by teacher; more than 10 children. Child is listening, waiting, talking, or doing something active less than 50% of the interval. Examples: story time, show and tell, teacher instructions/demonstration.

**SG Small Group Activity**
Structured and led by teacher, 2-10 children.

**IW Individual Work**
Teacher structured; child works at assigned tasks individually. Includes one-on-one instruction with teacher, structured independent work, and work sheets.

**Child-Initiated Activities** (Primarily child-selected and child-structured)

**FP1 Free Play-Indoors**
Indoors; child freely chooses activities; process-oriented with play materials, rather than teacher product, or teacher goal-oriented. Routinely available not put out by teacher as a one-time project (Examples: dramatic play; easel painting; block building).

**FPO Free Play-Outdoors**
Outdoors; child freely chooses activities; process-oriented with play materials, rather than teacher product, or teacher goal-oriented. Routinely available not put out by teacher as a one-time project (Examples: climbing on climber; swinging; dramatic play; sand play).

**LC Learning Centers**
Child chooses among teacher-structured activities, prepared and set up by teacher in a particular place. Independent or small group work, not continually led by teacher. Some child choice in selection and procedures. (Examples: listening center; structured arts/crafts project; structured math or science activity; looking at a book; computer program).
| CL | Cooperative Learning | Child does creative work or problem-solving in small groups (2-16). Teacher provides problem or task, emphasizing cooperation. Children structure, plan, and work without continuous teacher guidance. |
| IC | Individual Creative | An individual, open-ended, creative project put out by the teacher, or done upon teacher request. (If creative, but routinely available and/or totally child-initiated, score as Free Play). Child creates something of his/her own conception. Child provides most of the structure and plan. Mostly process oriented. |

**OTHER ACTIVITIES**

| RT | Rest Time | Teacher-initiated rest time. The child is resting for more than 5% of observation interval |
| ST | Snack Time | Snack |
| T  | Transition | The child is moving, doing something while changing from one activity to another (Child is in the process of changing activities during more than 50% of the interval) |

**TEACHER-STUDENT COMMENTS**

| P  | Procedural | Teacher statements pertaining to classroom structures, routines, activities, or rules |
| S/B | Social/Behavioral | Teacher statements that foster social decision making, development of conflict resolution skills, or socially acceptable behavior |
| I  | Instructional | Teacher statements that focus on teaching and learning of subject matter content |
Appendix D
Teacher-Parent Interaction Log
Teacher-Parent Interaction Log

Name

Please use the following codes when recording information on log:

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<tr>
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<th>Content</th>
<th>Form</th>
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<tbody>
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<td>M = Mother</td>
<td>A = Academic</td>
<td>T = Telephone</td>
</tr>
<tr>
<td>F = Father</td>
<td>B = Behavior</td>
<td>S = Scheduled Conference</td>
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<tr>
<td>O = Other</td>
<td>S = Social</td>
<td>U = Unscheduled Conference</td>
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Appendix E

DRA Continuum
<table>
<thead>
<tr>
<th>EMERGENT READERS</th>
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</thead>
<tbody>
<tr>
<td><strong>Book Selection</strong></td>
<td>Requires others to select and read text</td>
<td>Relies on others to select and introduce new texts</td>
</tr>
<tr>
<td></td>
<td>Reads familiar texts with support</td>
<td>Reads a few familiar texts independently and new texts with much support</td>
</tr>
<tr>
<td></td>
<td>Reads DRA text levels A-1 below 90% accuracy</td>
<td>Reads DRA text levels A-2 at 90% accuracy or above</td>
</tr>
<tr>
<td><strong>Observable Reading Behaviors</strong></td>
<td>Is uncertain about directionality</td>
<td>Moves left to right on one line of text</td>
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<tr>
<td></td>
<td>Points to words; inconsistent one-to-one match</td>
<td>Points to words: consistent one-to-one match</td>
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<tr>
<td></td>
<td>Relies on others to monitor reading</td>
<td>Monitors using 1 or 2 known words (e.g., is, no, yes)</td>
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<tr>
<td></td>
<td>Is uncertain about letters and words</td>
<td>Locates words and letters</td>
</tr>
<tr>
<td></td>
<td>Invents Story</td>
<td>&quot;Reads&quot; using picture and/or language cues</td>
</tr>
<tr>
<td>EARLY READERS</td>
<td>Selects new text with support</td>
<td>Selects new text with moderate support</td>
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<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>Book Selection and Sustained Reading</td>
<td>Reads some familiar texts independently and new texts with support</td>
<td>Reads most familiar texts independently and new texts with moderate support</td>
</tr>
<tr>
<td></td>
<td>Reads DRA text levels 3-6 at 94% accuracy or above</td>
<td>Reads DRA text levels 8-10 at 94% accuracy or above</td>
</tr>
<tr>
<td>Previewing and Predicting</td>
<td>Gathers limited information from the teacher’s introductions and the pictures</td>
<td>Gathers some information from the teacher’s introduction and the pictures</td>
</tr>
<tr>
<td></td>
<td>Comments briefly about each event or action when previewing pictures</td>
<td>Connects 1 to 2 events or actions when previewing the pictures (e.g. and, then, now)</td>
</tr>
<tr>
<td>Oral Reading Fluency and Use of Word Analysis</td>
<td>Reads word by word</td>
<td>Reads word by word with some short phrases</td>
</tr>
<tr>
<td>Skills and Strategies</td>
<td>Reads with no intonation; monotone</td>
<td>Reads with little intonation; rather monotone</td>
</tr>
<tr>
<td></td>
<td>At difficulty, rote, relying on support to problem-solve unknown words</td>
<td>At difficulty, initiates problem-solving of a few unknown words</td>
</tr>
<tr>
<td></td>
<td>Detects no miscues</td>
<td>Self-correction a few significant miscues</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Retelling reflects very little comprehension</td>
<td>Retelling reflects some comprehension</td>
</tr>
<tr>
<td></td>
<td>Date   Level</td>
<td>Date   Level</td>
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<tr>
<td><strong>TRANSITIONAL READERS</strong></td>
<td><strong>Selects new text with limited support</strong></td>
<td><strong>Selects new texts that are &quot;just right&quot; most of the time</strong></td>
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<tr>
<td><strong>Book Selection and Sustained Reading</strong></td>
<td>Reads familiar and some new easy texts independently</td>
<td>Reads many new easy texts independently</td>
</tr>
<tr>
<td></td>
<td>Reads DRA text levels 12-16 at 94% accuracy or above</td>
<td>Reads DRA text levels 18-24 at 94% accuracy or above</td>
</tr>
<tr>
<td><strong>Previewing and Prediction</strong></td>
<td>Gathers pertinent information from the teacher's introduction and the pictures</td>
<td>Gathers limited information from teacher's introduction, paragraphs, read aloud, and self-initiated preview</td>
</tr>
<tr>
<td></td>
<td>Connects events or actions when previewing pictures with little or no prompting</td>
<td>Predicts the next possible event or action; identifies 1 to 2 topics</td>
</tr>
<tr>
<td><strong>Oral Reading Fluency and Use of Word Analysis Skills and Strategies</strong></td>
<td>Reads in short phrases most of the time</td>
<td>Reads in longer phrases at time; inconsistent rate</td>
</tr>
<tr>
<td></td>
<td>Reads with some intonation; some attention to punctuation; monotone at times</td>
<td>Adjusts intonation to convey meaning at times; attends to punctuation most of the time</td>
</tr>
<tr>
<td></td>
<td>At difficulty, uses 1 to 2 cues to problem-solve unknown words</td>
<td>At difficulty, uses multiple cues to problem-solve unknown words</td>
</tr>
<tr>
<td></td>
<td>Self-corrects some significant miscues</td>
<td>Self-corrects most significant miscues</td>
</tr>
<tr>
<td><strong>Comprehension</strong></td>
<td>Retelling reflects some comprehension</td>
<td>Retelling reflects adequate comprehension</td>
</tr>
<tr>
<td></td>
<td>Date</td>
<td>Level</td>
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<tr>
<td>EXTENDING READERS</td>
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<tr>
<td><strong>Book Selection and Sustained Reading</strong></td>
<td>Selects a variety of “just right” texts</td>
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<tr>
<td></td>
<td>Reads new genres with moderate support</td>
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</tr>
<tr>
<td></td>
<td>Reads DRA text levels 28-34 at 94% accuracy or above</td>
<td></td>
</tr>
<tr>
<td><strong>Previewing and Predicting</strong></td>
<td>Gathers pertinent information from teacher’s introduction, paragraphs read aloud, and self-initiated preview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Predicts several possible events or actions with prompting; identifies some topics with prompting</td>
<td></td>
</tr>
<tr>
<td><strong>Oral Reading Fluency and use of Word Analysis Skills and Strategies</strong></td>
<td>Reads in longer phrases most of the time; adequate rate</td>
<td></td>
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<tr>
<td></td>
<td>Adjusts intonation to convey meaning; attends to punctuation</td>
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<tr>
<td></td>
<td>At difficulty, uses efficient cues to problem-solve unknown words most of the time</td>
<td></td>
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<tr>
<td></td>
<td>Self-corrects most significant miscues quickly</td>
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<tr>
<td><strong>Comprehension</strong></td>
<td>Retelling reflects adequate comprehension</td>
<td></td>
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<td></td>
<td>Date __________ Level ______</td>
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<tr>
<td></td>
<td>Retelling reflects very good comprehension</td>
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<td>Date __________ Level ______</td>
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