

Fall 2006

Sustaining Child Outcomes from the Early Childhood Initiative Project: Evaluation of School Age Developmentally Appropriate Practices

Amy Crans-Stafford

Follow this and additional works at: <https://dsc.duq.edu/etd>

Recommended Citation

Crans-Stafford, A. (2006). Sustaining Child Outcomes from the Early Childhood Initiative Project: Evaluation of School Age Developmentally Appropriate Practices (Doctoral dissertation, Duquesne University). Retrieved from <https://dsc.duq.edu/etd/441>

This Immediate Access is brought to you for free and open access by Duquesne Scholarship Collection. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Duquesne Scholarship Collection. For more information, please contact phillips@duq.edu.

SUSTAINING CHILD OUTCOMES FROM THE EARLY CHILDHOOD
INITIATIVE PROJECT: EVALUATION OF SCHOOL AGE
DEVELOPMENTALLY APPROPRIATE PRACTICES

Amy Jo Crans-Stafford, MS.Ed.

Submitted in partial fulfillment of
the requirements for the degree
Doctor of School Psychology

School Psychology Program

School of Education

Duquesne University

December 2006

ABSTRACT

Research has shown that high quality early childcare can provide positive changes in children's academic, social, and behavioral development. These positive early experiences are essential for children who are at developmental risk. Unfortunately, the positive outcomes from early education programs often diminish or disappear over time. Research has clearly shown the benefits of developmentally appropriate, high quality early childhood intervention. However, limited research has been conducted on the influence of developmentally appropriate practices on child outcomes during the early elementary school years. The purpose of this study was to examine the outcome of DAP from children who were enrolled in The Early Childhood Initiative (ECI) project. The ECI project was developed to provide quality early childcare for children from infancy to preschool living in high-risk neighborhoods in Pittsburgh, Pennsylvania.

Developmentally appropriate practices in early elementary classrooms were found to have a statistically significant relationship to children's academic performance. The Social Context of the classroom was a positive predictor of children's academic achievement and children in DAP classrooms rated as Good demonstrated a significant difference in academic performance in comparison to children in classrooms rated as Inadequate. Reading achievement was significantly higher in Good DAP classrooms than Minimal DAP classrooms.

TABLE OF CONTENTS

CHAPTER I	1
INTRODUCTION	1
Risk factors	1
Protective Factors.....	3
Early Childhood Demonstration Programs: Conflicting Results.....	4
Social Equity	6
Classroom Quality	8
Developmentally Appropriate Practices	8
Measuring DAP	9
Challenges Implementing Developmentally Appropriate Practices	11
Outcomes of Developmentally Appropriate Practices.....	12
Justification for the study.....	13
Purpose of Study	14
Early Childhood Initiative.....	15
Research Questions.....	16
Research Question 1a.....	16
Anticipated Results	16
Research Question 1b	16
Anticipated Results	17
Research Question 2a.....	17
Anticipated Results	17
Research Question 2b	17
Anticipated Results	17
Research Question 2c.....	18
Anticipated Results	18
Research Question 3a.....	18
Anticipated Results	18
Research Question 3b	18
Anticipated Results	19
CHAPTER II.....	20
LITERATURE REVIEW	20
Early Childhood Demonstration Projects	21
The High/Scope Perry Preschool Program	22
North Carolina Abecedarian Project.....	22
Milwaukee Project	23
The Chicago Longitudinal Study	23
Early Childhood Demonstration Projects	25
Head Start.....	26
Child versus family focused programs	27
Demonstration Projects versus Typical Early Childcare Programs.....	28
Characteristics of Quality Programs	29
Process Quality	29
Structural Quality.....	31

Developmentally Appropriate Practices	32
Developmentally Inappropriate Practices	33
Measuring DAP	34
DAP and Cognitive Outcomes.....	37
DAP and Psychosocial Outcomes.....	43
Assessing and Evaluating Early Childhood Outcomes.....	51
Authentic Assessment.....	51
Transition to Elementary School: School Readiness	53
Maintaining Early Childhood Program Benefits	55
Summary	57
CHAPTER III	59
METHOD	59
The Early Childhood Initiative Project.....	59
Participants.....	60
Child Measures	61
Classroom Measures.....	63
Design and Procedure	64
Data Analysis	67
CHAPTER IV	70
RESULTS	70
Descriptives.....	70
Pre-Analysis.....	72
Assumptions and Main Analysis	75
Research Question 1a.....	75
Research Question 1b	77
Regression of Academic Performance on Physical Environment	78
Regression of Academic Performance on Instructional Context.....	79
Regression of Academic Performance on Social Context	80
Multiple Regression on Academic Performance on Physical and Social Context.	81
Research question 2a.....	81
Research question 2b	83
Research question 3a.....	84
Research question 3b	87
CHAPTER V	90
DISCUSSION	90
Research Findings.....	90
Results Compared with Previous Findings.....	91
Implications.....	93
Implications for Policy Makers.....	93
Implications for School Psychology Practice	94
Implications for Research	95
Limitations	95
Recommendations for Future Research.....	96
References.....	98
APPENDIX.....	118

Institutional Review Board Acceptance Letter 118

LIST OF TABLES

Table 1: Early Childhood Demonstration Projects.....	25
Table 2: Studies Measuring Child Outcomes of DAP.....	48
Table 3: Frequencies by grade for two phases of the ECI, School Strand Data Collection.....	61
Table 4: Frequencies of Participants by Classroom and Grade Level.....	71
Table 5: Means of the APPEC Subscales and Total by Grades.....	71
Table 6: Means of the BSSI-3 Subscales and Total by Grades.....	72
Table 7: Correlation Matrix of Types of DAP and Classroom Academic Performance.....	73
Table 8: Regression Analysis Examination of Multicollinearity between Independent Variables.....	74
Table 9: Regression of DAP to Academic Performance.....	77
Table 10: Regression of Academic Performance on Physical Environment.....	78
Table 11: Regression of Academic Performance on Instructional Context	79
Table 12: Regression of Academic Performance on Social Context.....	80
Table 13: Multiple Regression on Academic Performance on Physical and Social Context.....	81
Table 14: Analysis of Variance of DAP and Academic Performance.....	82
Table 15: Scheffé_Post Hoc Comparisons for the Level of DAP and Academic Performance.....	83
Table 16: Multivariate and Univariate Analysis of Covariance on Level of DAP and Academic Performance.....	86
Table 17: Means and Standard Deviations for Level of DAP and Academic Performance.....	87
Table 18: Multivariate and Univariate Analysis of Covariance on Level of DAP and Age Expected Behavior.....	88
Table 19: Mean Scores and Standard Deviations for Level of DAP and Classroom Behavior and Daily Living Skills.....	89

LIST OF FIGURES

Figure 1: Predicted Residual Scatterplot for APPEC Regressed on BSSI-3.....76

ACKNOWLEDGEMENTS

This dissertation could have never been completed without the support and guidance from so many individuals. Dr. Miller, thank you for your patience to read draft, after draft, after draft while continuing to be supportive and providing feedback to my countless drafts. Your character and dedication to excellence shines through in all that you do. I am grateful for my committee members who have provided support and guidance during this process. Dr. Bagnato, thank you for giving me the opportunity to work with Early Child Care Partnerships. This was one of the most important and formative experiences of my graduate experience. I learned so much working with you and the ECP staff, who are continuously devoted to working with children and families. Dr. McGoey, I am grateful for your willingness to join my committee right before proposal, without ever meeting me. I appreciate your time and valuable feedback. I want to thank my family and friends for their endless love and patience. Marc you have been my husband, dissertation coach, and the bank of Stafford during my endless years as a student. When we met while I was completing my undergraduate research project, little did you know that I would be in school for the next 8 years. You have stood by me and supported me throughout this process. Lastly my ethic to excel and work hard in all that I do came from observation, guidance, and encouragement of my father. He never gave up and always tried his best. Daddy, you may not be here physically, but your memories and spirit is with me always.

CHAPTER I

INTRODUCTION

Quality early childcare experiences can provide a solid foundation on which later academic achievement and success can develop. Young children who are at developmental risk and living in poverty are at increased vulnerability to early academic and social difficulties without the presence of quality early childcare (Barnett, 1995; Campbell & Ramey, 1995). By intervening with high-quality early care and education, children at developmental risk have a greater opportunity to be prepared to enter kindergarten and experience school success.

The goals of early childhood intervention programs are to promote children's development, to prepare children to enter school ready to learn and improve their chances of success in school. By providing high quality early childcare to children at-risk, the intent is to enrich their experiences and improve their chances of success in school and later during adulthood. Research has demonstrated that early childhood initiatives developed for children who are at-risk have shown positive outcomes in children's academic, behavioral, and social domains (Gilliam, Ripple, Zigler, & Leiter, 2000; Lazar, Darlington, Murraray, & Lastings, 1982; Ramey & Ramey, 1998).

Risk factors

Risk is generally defined as something that will heighten the probability of undesired outcomes occurring in members of a group sharing one or more characteristics (Rutter, 1987; Werner & Smith, 1982). The presence of risk factors suggests that a healthy path of development for young children may be compromised. Development is

complex and there is no single cause or risk factor that predicts future difficulties (Cicchetti, 1984). The presence of one risk factor may show little prediction to poor outcomes. However, with the presence of additional factors (cumulative risk factors) there is a greater prediction of poor outcomes (Aylward, 1992; Sameroff, Seifer, Barcas, Zac, & Greenspan, 1987), specifically in school performance (Huston, 2002; McLoyd, 1998; Meisels & Wasik, 1990).

Approximately 40% of school-age children are classified as *at-risk* (Natriello, McDill, & Pallas, 1990). Factors that define risk include poverty, single-parent family structure, race and ethnicity, poor maternal education, and limited English proficiency (Natriello et al. 1990). Over 32 % of all school-age children are affected by at least one risk factor such as low income, low maternal education, or living in a single parent home. It is estimated that children in families with two or more risk factors make up 16% of the population (Raven & Knitzer, 2002).

Children growing up in families with multiple risk factors are at a greater risk for below average cognitive performance, academic performance (Landesman & Ramey, 1989) and poor behavioral outcomes (Brooks-Gunn, Klebanov, Liaw, & Duncan, 1995) than their more affluent peers. Children who are at-risk often enter preschool cognitively and socially behind their peers with one or no risk factors (Bowman & Donovan, 2002; Lee & Burkman, 2002). Functionally, children with multiple risk factors have fewer early academic accomplishments and more developmental difficulties than children with no risk factors or only one (Zill, 2002). The more chronic the economic, social, and psychological stressors that young children experience; the greater the likelihood of poorer social, emotional, and cognitive outcomes (Raver & Knitzer, 2002). As poor

school readiness predicts an increased likelihood of poor academic achievement, retention, special education placement, and, potential school dropout. In addition, these children present with elevated social risks for teen pregnancy, delinquency, unemployment, social dependency, and poor parenting practice (Carnegie Task Force on Meeting the Needs of Young Children, 1994).

Protective Factors

Despite predictions of risk, a number of children who can be identified as at-risk overcome socio-demographic barriers and achieve high levels of academic performance (Garmezy, 1993). In recent years, much research has focused on identifying those “protective factors” and processes that counteract or protect against risk. Protective factors are socio-demographic characteristics that have been shown to reduce the likelihood of maladaptive outcomes under conditions of risk. Two broad groups of variables have been identified as protective factors that help foster resistance: (a) *personal factors* and (b) *environmental factors*. Personal factors consist of individual factors such as high IQ, high self concept, sociability, and gender. Environmental factors are the supports and resources derived from family, school, and community. The presence of these factors is believed to distinguish resilient children from their vulnerable peers.

High-quality early childcare programs can reduce or influence risk factors and foster protective factors to impact children who are at developmental risk. Lee and Burkman (2002) reported that high quality early school experiences can be mediating protective factors for at-risk children. Ramey and Ramey (2002) concluded that second to family, school is likely to be the most powerful influence on child development. Ramey

and Ramey (1998) reviewed the outcomes from early childhood demonstration programs and identified four mechanisms of classroom quality that mediate school-aged academic and social outcomes: (a) an increase in a child's intellectual skills providing the child with skills to gain more from future experiences; (b) motivational change in the child; (c) an enhanced knowledge base resulting in greater environmental opportunities provided by others; and (d) access to more supportive environments.

Early Childhood Demonstration Programs: Conflicting Results

Policy makers often focus on the long-term outcomes from early childhood education programs where the benefits of the program often diminish or disappear over time (Lazar, Darlington, Murrari, & Lasing, 1982). During the 1960's, numerous early childcare programs targeted toward low-income families were initiated. The most well known federally-sponsored program is Project Head Start. Early evaluations of the program, specifically the Westinghouse/Ohio State evaluation of Head Start, concluded that there were no persistent gains with Head Start children in either cognitive or affective development as compared to matched comparison samples (Cicirelli, 1969). These results may have influenced policy makers to believe that there are no substantial benefits or gains from early childhood education programs. However, further research studies have demonstrated that children can and do benefit from specific early childhood education programs. Subsequent studies showed that the level of quality as well as methodological factors influences the outcomes of program participants.

The Consortium for Longitudinal Studies (CLS; 1983) was formed as an endeavor of leaders from 11 early childhood demonstration programs serving economically disadvantaged children developed between 1962 and 1973. Specifics from these early

childhood demonstration programs will be discussed in more detail in chapter 2. The CLS reported that children enrolled in early childhood demonstration programs had significantly fewer placements into special education and fewer grade retentions (Lazar et al., 1982) then a subset of the programs found a 12.3% increase in high school graduation for participants (Royce, Darlington & Murraray, 1983). However, after 3 years in public school the CLS reported that the Intellectual gains of children who had participated in the program largely disappeared, that is the significant difference between treatment and control groups did not endure past 5-6 years (Lazer et al., 1982). The High/Scope Perry Preschool Project, one member of the Consortium, reported that treated children regained an academic advantage over untreated controls in junior high school (Schweinhart & Weikart, 1980). These findings indicate that positive outcomes from early childhood demonstration programs are present. In addition, lasting effects in the context of early intervention often does not take into consideration mediating factors occurring during school years that impact child outcomes.

Due to the demand for understanding the lasting benefits of preschool programs, generalizations between programs often occur. One generalization has been between findings related to the national Head Start program and The High/Scope Perry Preschool Project Study. Head Start, as defined by its Program Performance Standards (National Head Start Association, 1990), does not match the standards of reasonable similarity with the High/Scope Perry Preschool Program. The Head Start Family and Child Experiences Survey (FACES) (Zill et al., 2002) reported that children gained four standard score points on the *Peabody Picture Vocabulary Test* during their Head Start year While in contrast, children who were enrolled in the High/Scope Perry Preschool Study gained

eight standard score points in their first year and a total of fourteen points after two years of enrollment in the program. The High/Scope Perry Preschool program demonstrated statistically significant effects on children's IQ during and up to one year after the program, but not after that. These long-term outcomes would lead policy makers to believe that this program was not effective. However, children who were enrolled in the program continued to demonstrate positive outcomes in the areas of school achievement, high school graduation, income, and crime prevention (Schweinhart, Barns, & Weikart, 1993).

Social Equity

Children's achievements do not occur in a social vacuum. Social factors can outweigh biological or medical factors in relation to children's success at school (Lee & Burkam, 2002). Children who are living in extreme poverty are less likely to be enrolled in quality early childcare than their more affluent peers (National Center for Educational Statistics [NCES], 1994). Quality programs are often not available or not located in at-risk neighborhoods (Lee & Burkam, 2002) creating a greater disadvantage for at-risk children than their peers who reside in more affluent neighborhoods.

Despite research indicating the benefits of quality early childhood education and experiences for children who are at-risk in at least the short-run, policy makers continue to focus on the cost, efficacy, and long-term success of children who attend early childcare programs (Bryant & Maxwell, 1997; National Institutes of Child Health and Human Development [NICHD], 1999, 2002). The initial investment in these programs is costly and can range from \$10,000-\$14,000 per child per year (Peisner-Feinberg et al., 2000). Researchers continue to demonstrate to policy makers that this is an investment

that our society cannot live without, as the long-term investment is invaluable (Ramey & Ramey, 1998).

Comprehensive services often decrease for low income children when they transition to elementary school (Lee & Burkman, 2002). Children who are at-risk are more likely to begin kindergarten in low quality elementary schools than their advantaged peers (Burchinal & Nelson, 2000). Lee and Loeb (1995) argue that fade-out occurs due to the quality of the schools that disadvantaged children attend after leaving intensive high quality early childcare programs.

The National Institutes of Child Health and Human Development (NICHD) Study of Early Childcare (2002) reported that children who attended low-quality childcare had more problem behaviors, lower cognitive ability, and language ability and lower school readiness scores. Negative outcomes of developmentally inappropriate classrooms with disadvantaged children have a greater decline in school achievement by the fourth grade and a poorer social adjustment in adolescence (Schweinhart, Weikart, & Larner, 1986). Primary grade teachers rated children who attended developmentally inappropriate kindergarten classrooms lower in conduct and work study habits and perceived them to be less pro social (Hart et al., 1998).

Early childhood demonstration programs developed for at-risk children have shown to produce large short-term gains on standardized tests of intelligence and sizable long-term effects on school achievement, grade retention, placement in special education, and social adjustment (Barnett, 1995). These advantages, specifically the studies that focus on child outcomes by their intellectual functioning, have been reported to diminish and may disappear three years following entry into kindergarten and the termination of

the early childcare program (Campbell & Ramey, 1995). The long-term effects on learning and development from early childhood demonstration projects tend to be those that provide high quality experiences (Barnett, 1995; Ramey & Ramey, 1998), enroll children younger and provide multiyear interventions (Campbell & Ramey, 1995; Gorey, 2001; Wasik et al., 1990) and provide highly intensive services and supports to children and their families (Ramey & Ramey, 1992). Researchers have identified program characteristics that optimally impact children who are at-risk. Children who attend programs that provide these characteristics have demonstrated the greatest outcomes (Ramey & Ramey, 1998).

Classroom Quality

During the past two decades, early childcare researchers and policymakers have increased their attention to the quality of care and education provided in early childcare programs. Of particular interest is the extent to which variations in the quality of early childhood experiences influence children's readiness and success in early elementary school. The Cost, Quality and Child Outcomes Study (1995) reported that only one in seven child care centers (14%) received overall ratings of good quality. The National Association for the Education of Young Children (NAEYC) has provided recommendations to achieve high-quality developmentally appropriate programs, which will be reviewed further (Bredekamp & Copple, 1997).

Developmentally Appropriate Practices

Developmentally appropriate practices (DAP) are based primarily on cognitive-developmental, social learning, and ecological systems theories (Jambunathan, Burts, & Pierce, 1999). The theoretical framework of DAP represents a constructivist perspective

of knowledge acquisition based from Piaget and Vygotsky. Characteristics of DAP consist of children actively engaged in meaningful learning activities and hands on materials are utilized to support learning. Teachers who practice DAP serve as facilitators of learning and make educational decisions based on: (a) research on child development and learning, (b) knowledge of children's individual strengths and needs, and (c) knowledge of children's social and cultural contexts (Bredekamp & Copple, 1997).

Research on the topic of DAP typically focuses on children from birth through kindergarten. However, the NAEYC position statement (Bredkamp & Copple, 1997) on DAP applies to children birth through 8 years of age, which includes children in the primary grades (kindergarten through third grade). Clear guidelines of DAP are provided for each age group of children. However, clear measures of DAP in the classroom have not been developed. Advocates of DAP argue that failure to provide education that is appropriate to a young child's development may contribute to future learning and behavioral problems as the child would be expected to learn and demonstrate concepts they cannot understand (Burts, Hart, Charlesworth, & Kirk, 1990).

Many of the studies of DAP have been geared toward preschool classrooms. Little research has focused on DAP in early elementary classrooms. This area of research is important as early childhood educators attempt to facilitate continuity between preschool and the primary grades by advocating the continuation DAP into early elementary classrooms (Holmes & Morrison, 1994; Jang & Magione, 1994).

Measuring DAP

The position statement on DAP developed by the NAEYC report (Bredekamp & Copple, 1997) is considered the standard definition of DAP in the literature. There is little

disagreement about how DAP is defined; however, clear standards have not been developed on methods to measure and assess DAP in early elementary classrooms. One reason for this is limited research in the field of early childhood focusing on measurement and assessment of DAP in early elementary years.

One method to measure DAP has been to examine “teacher beliefs” about DAP and the relationship of those beliefs to student performance. This approach suggests that teachers’ reported beliefs are equivocal to their actual practices in the classroom. A number of assessment measures have been developed based on the assumption that “teacher beliefs” are the mechanism that leads to DAP being implemented in the classroom (Charlsworth, Hart, Burts, & Hernandez, 1991). Researchers have demonstrated a relationship between teachers’ reported use of DAP and observational measures of DAP (Burts, Hart & Kurt, 1990; Charlesworth et al., 1991; Charlesworth et al., 1993). These studies only included teachers with the highest and lowest levels of self reported DAP, suggesting this measure may not be reliable for classrooms that do not in the extremely high or low range of DAP.

Another method to assess DAP in early elementary school has been to adapt measures previously designed to assess DAP or high quality practices in preschool settings. *The Classroom Practices Inventory* (CPI; Hyson, Hirsh-Pasek, & Rescorla, 1990) and *The Early Childhood Environment Rating Scale* (ECERS; Bryant, Clifford, & Peisner, 1991) were originally intended to measure DAP in preschool settings and *The Appropriate Practices of Kindergarten Classrooms* (Charlesworth, et al., 1991) was developed to measure DAP in Kindergarten. The psychometric constructs of these measures were intended for a specific age group. These measures should not be applied

to classrooms in first through third grade, as some of the items are not applicable to these grade levels. The *Assessment Profile for Early Childhood Programs* (Abbott-Shim & Sibley, 1992) was originally developed in the 1970's to measure the quality of the preschool environment. The instrument was recently adapted for use in early elementary classrooms (Huffman & Speer, 2000). However direct inferences of DAP should not be derived from this measure as its original intent was to assess quality and the items are not consistent with the NAEYC's guidelines of DAP.

To date, there are two measures developed to assess DAP in kindergarten through third grad: the *Assessment of Practices in Early Elementary Classrooms* (APEEC, Hemmeter, Maxwell, Ault, & Schuster, 2001) and *The Developmentally Appropriate Practice Template* (ADAPT; Gottlieb, 1997). The items on the APEEC align with the guidelines established by the NAEYC (Maxwell et al., 2001). The ADAPT was found to be moderately related to NAEYC guidelines and the *Assessment Profile for Early Childhood Programs* (Van Horn & Ramey, 2004).

Challenges Implementing Developmentally Appropriate Practices

The National Commission of Excellence in Education (1983) developed standards to ensure that school-age curriculum standards are appropriately challenging. With these changes, elementary schools face the downward shift in curriculum; making classrooms more didactic and often merely focusing on academics (Breadkamp & Shephard, 1989). These classrooms rely heavily on the use of large group, teacher-directed instruction, drill and practice teaching, workbooks and worksheets (i.e., developmentally inappropriate practices). Consequently, many of the characteristics of DAP are difficult to achieve and

many school districts find themselves in a quandary regarding the curriculum they should support in their early elementary classrooms.

Early childhood professionals developed a position statement reporting that teaching practices for older children should not be implemented on younger children (National Association of Young Children, 1988, 1990). Yet, few early childhood classrooms exemplify DAP in preschool or school-age settings. Dunn and Kontos (1997) reviewed the literature over the last decade and reported finding only one-fifth to one-third of the programs studied adhering to DAP. In a similar study, Bryant and colleagues (1991) reported that only 20% of the kindergarten classes observed reached or exceeded developmental appropriateness.

Outcomes of Developmentally Appropriate Practices

In addition to the position statement from NAEYC (Bredekamp & Copple, 1997) supporting DAP, researchers must be able to clearly document the positive outcomes of DAP on children's academic, social and emotional development to convince policy makers of the importance of developmental practices. The majority of studies assessing DAP have been conducted assessing children at the preschool and kindergarten level.

Studies supportive of DAP have reported positive outcomes for children in academic, social, and behavioral domains. The findings during preschool and early elementary school indicate that children from child initiated or DAP classrooms demonstrate higher levels of cognitive (Bryant, Burchinal, Lau, & Sparling; Frede & Barnett, 1992) academic performance (Huffman & Speer, 2000; Marcon, 1992, 1999) and lower levels of stress related behaviors (Burts, Hart, Charlesworth & Kirk, 1990; Burts et al., 1992; Hart et al., 1998; Dunn, Beach, & Kontos, 1994) than children in DIP classrooms.

There is limited research that has assessed levels and types of DAP in early elementary classrooms on child outcomes. To date only three studies have evaluated the effects of DAP in first through third grade. Huffman and Speer (2000) reported that kindergarten and first grade children in moderately rated DAP classrooms performed better on standardized academic testing. Another study of first graders (Jones & Gullo, 1999) found no significant impacts on classrooms rated DAP or DIP. Children who were in classrooms rated average DAP scored higher on measures of math in comparisons to children in DAP or DIP classrooms. The most recent research study by Van Horn and Ramey (2003) measured the effects of DAP on children in first through third grade. Findings indicated no consistent relationship between DAP and change on standardized testing.

Justification for the study

The research literature has documented the immediate benefits of high quality early childhood education programs designed for children who are at developmental risk (Ramey & Ramey, 1998). However, by third grade children's gains from preschool programs have diminished or disappeared when children did not attend an intensive high quality early school experiences (Lazar et al., 1982). There are many factors that influence school success. There are discrepancies in the evidence on what factors influence and maintain these gains. In order to understand developmental trajectories of school success further research is needed to examine risk and protective factors that influence sustaining gains made during quality early childhood programs. One strong environmental factor that can influence school success is classroom experience. Research has clearly shown the benefits of developmentally appropriate, high quality early

childhood intervention. However, limited research has been conducted on the influence of DAP on child outcomes during the early elementary school years. Further, limited research has been conducted on the level and type of DAP during early elementary school years and the impact of DAP on child outcomes. Only two studies have examined DAP in first grade and the results were inconsistent. One study found positive effects from DAP (Huffman & Speer, 2000). Only one study to date has examined DAP longitudinally in first through third grade (Van Horn & Ramey, 2003). The *Assessment Practices of Early Elementary Classrooms* (APEEC; Hemmeter et al., 2001) was selected to measure DAP, for the current research study.

The current study examined the interaction between children's early developmental, social and emotional characteristics, environmental contexts (measured through child-care quality), and the time periods in which these processes occur (measured both concurrently in early childcare and longitudinally from preschool to early elementary school). There is limited research that has focused on how schools can maintain gains from quality early demonstration programs when children transition and enter elementary school. The ecological context of DAP in early childhood education was anticipated to be a protective factor in child outcomes.

Purpose of Study

The purpose of this study is to examine the influence of the level and type of DAP during early elementary school on children from the ECI project. Environmental characteristics of early elementary classrooms were examined to determine if they had a positive influence on child outcomes. Specific environmental characteristics include: physical environment, instructional context, and social context, as measured by the

subscales on the APEEC. By understanding factors that can sustain child success, it is expected that high levels of DAP during early elementary school have sustained early child outcomes.

Early Childhood Initiative

The current study utilized a pre-existing database provided by the Early Childhood Intervention (ECI) project and Scaling Progress in Early Childhood Settings (SPECS) Evaluation Team. The ECI project was developed through collaboration among public and private sector stakeholder groups in the Pittsburgh region, specifically the Heinz endowments and the business leaders of major corporations in the region. The goal of the ECI project was to ensure early school success for high-risk children. The average primary grade (K-3rd grade) retention and special education placement rates for school districts within ECI communities were 23% and 21% respectively (Bagnato et al., 2002). The objective of the ECI project was to enroll all unserved children living in high-risk urban neighborhoods into high quality early childcare. The ECI began enrolling children from infancy to 5 years of age in September 1998. The ECI project provided programs were diverse and focused on the needs of the communities which included: newly created early care and education centers, previously existing providers, Early Head Start/Head Start Centers, early literacy programs, family childcare homes, inclusive early childhood and early intervention programs.

The ECI project model was developed based on elements of effective intervention programs for children at developmental risk as identified by Ramey & Ramey (1998). There are five features of the ECI project: (a) ongoing consultation to improve program quality; (b) monitoring regarding the implementation of NAEYC standards, practices,

and eventual accreditation; (c) diverse forms of parent participation; (d) early care and education routines guided by ongoing child assessments and feedback; and (e) community-based leadership to organize creative interagency support for children (Bagnato et al., 2002 p 563).

The SPECS Evaluation Team was responsible for monitoring and evaluating the outcomes of the ECI project, and providing quality improvement feedback. The SPECS Evaluation Team is an independently funded and directed research evaluation team at Children's Hospital of Pittsburgh and the UCLID Center at the University of Pittsburgh.

Research Questions

The research questions considered in this study are as follows:

Research Question 1a

Does DAP in early elementary school (kindergarten through second grade) predict overall age expected academic performance in early elementary school from children who were enrolled in the ECI project?

Anticipated Results

It is expected that children from the ECI project will demonstrate age level expected academic performance, as measured by overall BSSI-3 total standard score when placed in moderate to high level DAP classrooms, as measured by the APEEC total score.

Research Question 1b

Does the type of DAP in early elementary school (i.e., Social Context, Physical Environment, and Instructional Context subscales of the APEEC) in early elementary

school (kindergarten through second grade) predict overall age expected academic performance, as measured by the BSSI-3 total standard score?

Anticipated Results

It is expected that children who are in classrooms that are rated good to excellent classrooms in the areas of Social Context, Physical, Environment, and Instructional Context will demonstrate age expected academic performance, as measured by BSSI-3 total Standard Score.

Research Question 2a

Does the level of DAP in early elementary classrooms relate to overall age expected academic performance?

Anticipated Results

It is expected that children who are in good to excellent rated classrooms will show higher levels of overall academic performance as measured by the BSSI-3 total standard score.

Research Question 2b

Does the Social Context in the classroom influence age expected behaviors of children in the classroom?

Anticipated Results

It is anticipated that children who are in classrooms that are rated higher on the Social Context subscale of the APEEC will demonstrate greater age expected behaviors, as measured by the classroom behavior subscale on the BSSI-3, than children who are classrooms than classrooms that have lower ratings on the Social Context subscale of the APEEC.

Research Question 2c

Does the Instructional Context in the classroom influence age expected behaviors of children in the classroom?

Anticipated Results

It is anticipated that children who are in classrooms that are rated higher on the Instructional Context subscale of the APEEC will demonstrate greater age expected behaviors, as measured by the classroom behavior subscale on the BSSI-3, than children who are in classrooms that have lower ratings on the Instructional Context subscale of the APEEC.

Research Question 3a

Do children who are enrolled in minimal to excellent rated DAP classrooms in Kindergarten, after transitioning from the ECI project in early elementary school maintain age expected academic gains from the end of preschool to the end of kindergarten.

Anticipated Results

It is anticipated that only children who are enrolled in good and excellent rated DAP classrooms will maintain age appropriate academic gains from the previous year.

Research Question 3b

Do children who are enrolled in minimal to excellent rated DAP classrooms in kindergarten, after transitioning from the ECI project maintain age level Daily Living Skills and Classroom Behavior, from the end of preschool to the end of kindergarten.

Anticipated Results

It is anticipated that only children who are enrolled in good and excellent rated DAP classrooms will maintain age appropriate daily living skills and classroom behavior from the previous year.

CHAPTER II

LITERATURE REVIEW

Children's earliest experiences often set the stage for subsequent development. The Board on Children, Youth, and Families of the Institute of Medicine conducted a study entitled *Neurons to Neighborhoods* (Shonkoff, 2000). The emerging research informs policy makers that intervening as early as possible can help prevent poor cognitive, social, and emotional development. Early childhood demonstration programs have shown significant short-term gains in disadvantaged children's performance on standardized tests of intelligence (Lazar et al., 1982) and sizable long-term effects on school achievement, grade retention, placement in special education, and social adjustment (Barnett, 1995; Reynolds, 1994).

Ramey and Ramey (1998) reviewed the literature of early childhood demonstration programs over the last 25 years noting consistencies across findings. Early intervention programs have been found to produce moderate to large effects on children's cognitive and social development. Large effect sizes have been associated with improved performance later in school, particularly when the schools are of good quality (Ramey & Ramey, 1998). Ramey and Ramey (1998) noted six characteristics of early childhood programs that have been linked with short-term and long-term outcomes for children and families. The six characteristics are: (a) programming that begins during infancy and is longitudinal; (b) programs that are intensive, comprehensive, and provided individualized support; (c) programs that provide direct child intervention; (d) integrated services and linkage to community-based services; (e) programs that provide individual services to

meet needs of each child; and (f) provided support, services, and evaluation into the primary grades.

The value of high quality early childcare programming is an economic factor (Clifford et al., 1998). The cost of providing high quality early child care for children at-risk greatly exceeds the cost of a typical day care program. The Cost, Quality and Child Outcomes study reported that the cost of comprehensive high quality early childcare programs can range from \$10,000- \$14,000 yearly per child. The cost of custodial daycare and low quality child care costs are less expensive and can range from \$4,000- \$7,000 yearly per child (Peisner-Feinberg et al., 2000). High quality care requires a substantial financial investment, which cannot be provided by low-income parents. In addition, early childhood research studies often include comprehensive services to children and families that increase the cost implementing the study. Replicating the study in a natural setting is difficult as at-risk families cannot supplement the cost for these additional services and funding may not be available. The initial cost appears substantial, but far outweighs the social and long-term costs. For example, the cost benefit analysis of High/Scope Perry Preschool Study through age 40 indicates a public return of \$195,621 from program participants in comparison to the control group (Schweinhart et al., 2005).

Early Childhood Demonstration Projects

Early childhood demonstration projects have been developed through federal, state, and local funds to evaluate the impact of quality early childhood intervention programs for children who are at developmental risk. The following are descriptions of the major early childhood demonstration projects from the 1970's to the present.

Program highlights of each early childhood demonstration project are provided in Table 1.

The High/Scope Perry Preschool Program

The Perry Preschool Program in Ypsilanti, MI, was developed to examine the influence of a high quality preschool program for children living in poverty. Children whose performance on standardized tests of intelligence was lower than a standard score of 90 were randomly assigned to either educational intervention services or to a comparison group that received no additional services. Children participated in the program for 2 ½ hours a day, five days a week, for two years (Lazar et al, 1982).

The program characteristics included: child-directed learning, low teacher:child ratio and home visits to all of the families in the program. The cost of the research program was reported to be \$12,000 per child per year.

North Carolina Abecedarian Project

The North Carolina Abecedarian Project was designed to close the gap between poor children and their more advantaged peers. The North Carolina Abecedarian Project (Frank Porter Graham Child Development Center, 2001) was a comprehensive health, education, and family support program that provided an individualized approach to families and their children who are at-risk. The program was designed specifically for mothers with low intellectual functioning and low income. Services included early childhood education beginning at birth through kindergarten or second grade and educational services for mothers. Children were randomly assigned to control group (n=54) or treatment group during infancy (n=57). When the participants transitioned to kindergarten, an additional school educational service was randomly assigned to children

making a three group comparison: no intervention, early education intervention only, and early intervention plus school intervention. The characteristics of the early childhood education program were child-directed with a focus on cognitive development, motor development, and social/adaptive skills. The Abecedarian project cost approximately \$12,000 per year per child. Children who were considered the most at risk, (measured by maternal cognitive status, home environment, and mother-child interaction patterns) benefited the most, as measured by child cognitive assessments (Ramey & Campbell, 1992).

Milwaukee Project

The Milwaukee Project (Garber, 1988) was targeted for mothers whose performance on a standardized test of intelligence was less than a standard score of 75, unemployed, and who were living in poverty. Services included early childhood education for children infancy through kindergarten and vocational training for the mothers. During infancy, children participated in an “infant stimulation center.” Children ages two to four years old participated in a language-based preschool program. While, children ages four to six, participated in center-based schooling with certified teachers that emphasized reading and math skills. A program cost-analysis was not conducted on the Milwaukee project.

The Chicago Longitudinal Study

The Chicago Longitudinal Study (CLS; Reynolds, 2000) is a federally funded investigation of the effects of an early and comprehensive program serving children and their families. The program targeted low-income minority children living in high-poverty neighborhoods in central-city of Chicago. The Child-Parent Center (CPC) Program,

included a half-day center-based early intervention for three and four year old children that provided comprehensive educational and family support services. The CPC also includes a half or full day kindergarten program and school age services linked to elementary schools through third grade. The program was designed to promote children's academic success and to support parental involvement in children's' education.

Table 1
Early Childhood Demonstration Projects

Project	Selection Criteria	Age Group	Intensity	Child Outcome Measures	Classroom Measures
The Perry Preschool Program	Child SS IQ < 90; randomly assigned to program or comparison of group	Preschool	Half Day Weekly home visits	PPVT Stanford Binet WISC ITSA Metropolitan Achievement Piers-Harris Self-Concept Rosenberg Self-Esteem	ECERS ADAPT
North Carolina Abecedarian Project	Mother low IQ Low Income control group/ Program/ Program+ school intervention	Birth-K Birth- 2 nd	Full Day Home visitation Group meetings	Bayley Stanford Binet McCarthy Scales of Children's Abilities WPPSI WISC-R WJ-selected subtests	
The Chicago Longitudinal Study	At-risks children in targeted communities	Preschool Preschool+ Early Elementary School	Home visitation	CTSB IAS	CORS
Early Childhood Intervention	At-risks children in targeted communities	Infancy- Kindergarten	Full/ Half Day Home Visitation	DOCS PKBS-2 CSSA BSSI-3	ITERS ECERS APEEC

Note. PPVT = Peabody Picture Vocabulary Test; WISC = Wechler Intelligence Scale for Children- Third Edition; ADAPT = The Developmentally Appropriate Practice Template; WPPSI= Wechler Preschool and Primary Scale of Intelligence; WISC-R = Wechler Intelligence Scale for Children- Revised; WJ-Selected= Selected subtests from the Woodcock Johnson Tests of Achievement- Revised; CORS= Classroom Observation Rating Scale; IAS= Instructional Activities Scale; DOCS= Developmental Observation Checklist System; PKBS-2= Preschool and Kindergarten Behavior Rating Scale- Second Edition; ITERS = Infant/Toddler Environmental Rating Scale; CSSA= Comprehensive Scale of Students Abilities; BSSI-3 = Basic Student Skills Inventory- Third Edition; ECERS = Early Childhood Environmental Rating Scale; APEEC = Assessment Practices of Early Elementary Classrooms.

Head Start

Head Start was created to provide educational services, nutritious meals, and health care services to young children. Head Start regulations require that at least 90% of children who attend come from low income families with the remaining 10% consisting of children with special needs. Although the demographics of the children who attend Head Start are comparable to children who attended the early demonstration programs previously reported, the quality of Head Start programs is often not comparable. One comparison of differences in quality is teacher education. The majority of Head Start teachers have not received specialized training in early childhood education. Only 28% of teachers have a bachelor's degree and only 19% hold an associate's degree (Zill et al., 2002). Teacher salaries in Head Start are approximately half of the salary of a public school teacher (National Research Council, 2001), making it difficult to hire highly qualified teachers. Quality and standards of curriculum are not consistent across Head Start Classrooms. The High/Scope model was reported to be implemented in 20% of Head Start classrooms, while 39% report using the Creative Curriculum, and the remaining 41% report using another curriculum (Dodge, Colker, & Heroman, 2002). Results assessing the first 15 years of Head Start reported that children who attended the program made significant short-term gains on cognitive tests, socioemotional development, and health. Unfortunately these effects tended to fade over time. The quality and consistency of programming across Head Start classroom is likely to impact the results of child outcomes. Head Start classrooms are often not implemented with rigor and uniformity of the previously reported early childhood demonstration projects.

Child versus family focused programs

The intent of parent or family focused interventions are to change the parents' expectations for, and interactions with their child. The intent of this type of program is to structure more stimulating and responsive interactions between the parent and child through family focused interventions. It is anticipated that the child's cognitive development will increase over time, and the effects through family focused interventions will continue to occur after the intervention ends, thus, having a greater impact on the child than school based early childhood programs (Reynolds, 1992).

Research has indicated that programs geared towards impacting parents do not influence the development of children who are at-risk as strongly as early childcare programs that provide direct care to the child. Project Care (Wasik et al., 1990) was designed to determine if an early childcare program in conjunction with a family education program would impact the family home environment, which would then impact the child's cognitive development. Children who both attended the Child Development Program and their families were enrolled in the Family Education program scored higher on cognitive development than children who only attended the Child Development program and the control group. There were cognitive differences between children from the Family Education program and the control group. At 54 months of age, standard scores on the McCarthy Scales were: Family Education program, no community day-care, 87.1 ($SD=11$, $n=13$); Control group, no community day-care 91.0 ($SD=13.4$, $n=8$); Family Education, community day care, 92.9 ($SD=14.3$, $n=12$); control group, community day-care, 92.8 ($SD=10.6$, $n=14$); and Child Development Center Plus Family Education program, 103.1 ($SD=7.6$, $n=14$). The family education program did not affect

the home environment, as measured by the HOME Inventory (Wasik et al., 1990), or change parent attitude. Overall, the family education program alone did not produce significant changes in child or family outcomes.

The Comprehensive Child Development Program (CCDP) served children from families whose income was below poverty. Services included parenting education, developmental screening for all children, and developmentally appropriate early childhood educational experiences. The goal of the CCDP was to impact children through three mechanisms: changes in parenting; greater access to high quality early childhood education; and services to increase the family's economic level. The results indicated that providing intervention primarily through parents was not an optimal pathway to positive child outcomes (Goodson, Layzer, St. Pierre, Bernstein, & Lopez, 2000).

Demonstration Projects versus Typical Early Childcare Programs

Early childhood demonstration projects are developed to provide the ideal research environment. The participants were selected based on specific research criteria. The programs provide highly intensive services and supports to children and their families. Early childhood demonstration projects are typically undertaken with a small number of subjects and in a limited range of settings. These research-oriented programs are experimental in nature and are run or supervised by the investigation teams. Children are matched to particular teaching styles based on parent education, scores on intellectual assessment, employment, and socioeconomic status (Lazar et al., 1982). Typical public programs are not structured in such a way as to permit stringent evaluation and public and private donors are not typically willing to support longitudinal studies (Lazar et al., 1982).

Characteristics of Quality Programs

Global ratings of program quality have been developed that can be related to children's behavior and future development. The global ratings of classroom quality typically contain two areas of focus: *process quality* and *structural quality*.

Process Quality

Process quality includes: teacher-child interactions, daily activities, language and reasoning experiences, classroom routines and furnishings, and health and safety issues. Characteristics of *process quality* are typically measured through classroom observation and include ratings of a caregiver's behavior with individual children.

The teacher-child interaction is a critical component of high quality developmentally appropriate classrooms. Positive and responsive interactions facilitate children's cognitive development. Guidelines for DAP outlined by the NAEYC emphasize the importance of sensitive and responsive interactions that facilitate and guide children's social-emotional development (Bredekamp & Copple, 1997). The National Association for the Education of Young Children (NAEYC) considers teacher-child interactions to be developmentally appropriate when the teacher: (a) responds quickly, directly, and warmly to children; (b) a variety of opportunities are provided to engage in two-way communication; (c) and the teacher identifies and elaborates on the feelings, interests, and activities of children (Bredekamp, 1987; Harms & Clifford, 1980).

Birch and Ladd (1997) examined how three features of the teacher-child relationship: closeness, dependency, and conflict were related to aspects of children's school adjustment. Teacher-child closeness was positively associated with children's academic performance, school attitude, and engagement in the school environment.

Findings suggested, children are more likely to benefit from learning activities in the classroom when they have a close relationship with the teacher. Children who were rated higher in teacher-child conflict were rated lower in cooperative participation and less self-directed (Birch & Ladd, 1997).

Children's relationships with their teacher have been found to influence their social and emotional development (Arnett, 1989; Charlersworth et al., 1993; Raver & Knitzer, 2002). Teachers serve an important role in helping children develop positive social and emotional skills that are underlying skills for later academic success. Social and emotional characteristics have been reported to be related to children's school performance and relationships with peers (Howes, Hamilton, & Matheson, 1994). Alexander and Entwisle (1998) reported that children who are cooperative have the ability to appropriately regulate their emotions and to demonstrate compliance with rules and requests, as well as experience greater academic success in their early school years.

Researchers have reported that children who have nurturing, less directive, and less detached teachers experienced more positive interactions and exhibit higher levels of language development (Whitebook, Howes & Phillips, 1990). Teachers serving low-income children were found to use significantly harsher, detached, and insensitive behaviors than teachers serving middle and upper-income children (Phillips, Voran, Kisker, Howes, & Whitebrook, 1994). Teachers were reported to be less likely to recognize cognitive ability in children whose behavior they perceived as negative. Consequently, these children were less likely to experience and engage in positive interactions.

Structural Quality

Structural quality characteristics involve the context of the environment. These include: child-adult ratios; group size; physical environment; and education and training of staff (Frede, 1995). These characteristics are often subject to state regulations.

Structural characteristics are typically measured by examining program characteristics. Measurement of *structural characteristics* in classrooms is typically based on standards or recommendations made by professional organizations or state mandates, such as size of space per number of children.

Smaller groups of children and lower ratios of children-to-staff result in better social and cognitive outcomes for children at-risk (Bredekamp, 1987). Huffman and Speer (2002) reported that interactions between the teacher and child, among children, and between children and classroom materials appeared to affect children's development in relationship to group size and ratio of children to staff.

Staff qualification and training is one area where DIP programs typically fall short. The Cost, Quality, and Child Outcomes Study (1995) reported the higher the level of teacher education and early childhood training, the better the quality of care and DAP of the classroom. Although the level of staff education and training in early childcare has increased in the last two decades, there is still much room for improvement.

Classroom consultation has been one avenue to provide training and support to early childcare teachers. Yosjikawa and Knitzer (1997) reported that on-site mental health consultation has demonstrated improved child outcomes. Teachers appear to need additional training and support when working with children who are at-risk. Ongoing mental health consultation is an emerging trend in early childhood settings (Head Start,

Early Head Start and child care). The mental health consultant can develop classroom based interventions serving all children in the classroom as well as provide intensive individualized interventions.

Developmentally Appropriate Practices

Definitions of quality early childcare are consistent across the literature, however, there is less agreement and consistency concerning what constitutes best practices or DAP. Programs of similar quality ratings may demonstrate different practices (Wishard, Shivers, Howes, & Ritchie, 2003). Developmentally appropriate practices are one component of quality, however, DAP does not ensure high quality early childcare (Wishard et al, 2003).

The National Association for the Education of Young Children (NAEYC) have developed a position statement on DAP in programs for children birth through 8 years of age (Bredekamp, 1987; Bredekamp & Copple, 1997). The core belief of DAP is that the child is the driving force of the curriculum. The curriculum of the classroom is based on the developing cognitive, physical, social, and emotional competence of the child as well as their cultural background. DAP consists of three primary factors to which the teacher should attend: human development and learning, individual characteristics and experiences, and the social and cultural contexts of the child (Bredekamp, 1987; Bredekamp & Copple, 1997).

Characteristics of developmentally appropriate classrooms involve child directed/initiated center-based learning (Burchinal, Roberts, Riggins, Zeisel, Neebe, & Bryant, 2000). Developmentally appropriate practices fosters children to make choices of activities and work areas and, and provides opportunities to interact with their peers at

their own pace. Developmentally appropriate curricula encourage opportunities for social development (Jambunathan, Burts, & Pierce, 1999). Due to the nature of the DAP environment, children are more likely to experience success. Research supportive of DAP has demonstrated positive outcomes in academic, social, and behavioral domains (Burts et al., 1992).

Developmentally Inappropriate Practices

During the 1970's and the 1980's perceptions that U.S. children were falling behind the rest of world academically led to the downward extension or shift of traditional academic curriculum and didactic teaching from early elementary grades to preschool (Elkind, 1986; Johnson & Johnson, 1992). Due to the downward shift in curriculum, didactic or academic teaching strategies are often implemented in preschool and kindergarten (Goffin & Wilson, 2001). Although direct instruction serves a purpose, this method of instruction is not optimal developmentally during early childhood (Bredekamp & Copple, 1997). Direct instruction or didactic curriculum teaches discrete skills that are fast paced. The teacher presents the information in a drill and practice manner providing minimal praise (Frede, 1995; Goffin & Wilson, 2001).

Many early childhood researchers believe that highly formalized instruction is inappropriate and may inhibit a child's development over time. Direct instruction produces fewer positive outcomes than other practices (Marcon, 1992; Hart et al., 1997) specifically for boys (Hart, Burts, & Charlesworth, 1997; Marcon 1993, 1999). Teacher directed programs do not provide opportunities necessary for learning self-regulatory or prosocial skills. The direct instruction model is less effective than non-didactic teaching

methods at developing problem solving skills, improving social development and reducing delinquency (Schweinhart et al., 1986).

In a review of studies on preschool and kindergarten classroom practices, Dunn and Kontos (1997) reported that only one-fifth to one-third of early childhood classrooms fully demonstrate DAP. Oakes and Caruso (1990) reported that the kindergarten teachers they observed rarely engaged in strategies consistent with DAP. Didactic or traditional academic instruction used in upper grades are frequently observed in kindergarten and first grade (Bredekamp, 1993; Hatch & Freeman, 1988). Bryant and colleagues (1991) reported that only 20% of the kindergarten classrooms observed were considered developmentally appropriate using a modified version of the ECERS (Harms, Clifford & Cryer, 1990) and *The Checklist of Kindergarten Activities* (CKA; Hyson et al., 1990). When looking at DAP in kindergarten, Bryant and colleagues (1991) reported that overall classroom quality was not related to per pupil expenditure. While, Heaviside and Farris (1993) reported kindergarten teachers in schools where 50% of the children are eligible for free lunch are more likely to use worksheets and manipulatives for math and science than are teachers with fewer children from low income families.

Measuring DAP

As stated previously, clear standards have not been developed by NAEYC (Bredekamp & Copple, 1997) on the appropriate methods to measure and assess DAP in early elementary classrooms. There are several measures that have been developed or adapted to assess DAP in early elementary classrooms which will be reviewed. To date there are only two measures that have been developed to measure DAP in early elementary classrooms *The Assessment of Practices in Early Elementary Classrooms* (APEEC;

Hemmeter et al., 2001) and *The Developmentally Appropriate Practice Template* (ADAPT; Gottlieb, 1997).

The *Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classrooms* (Charlsworth, Hart, Burts, & Hernandez, 1991) was developed to examine “teacher beliefs” about DAP and the relationship to student performance. The authors’ approach suggests that teachers’ reported beliefs are equivocal to their actual practices in the classroom. To date, the Checklist for Rating Developmentally Appropriate Practice in Kindergarten Classrooms has only been used by the authors to estimate the validity of the teacher self-report scale. It was reported that the measure demonstrated only modest relationships between teacher’s beliefs and teachers’ self reported use of DAP in the classroom (Charlsworth et al., 1991).

The Classroom Practices Inventory (CPI; Hyson, Hirsh-Pasek, & Rescorla, 1990) and ECERS (Bryant, Clifford, & Peisner, 1991) were originally intended to measure quality in preschool settings and *The Appropriate Practices of Kindergarten Classrooms* (Charlesworth, et al., 1991) was developed to measure DAP in Kindergarten. These three measures have been adapted to measure DAP in early elementary classrooms. The psychometric constructs of these measures were intended for a specific age group and should not be applied in first to third grade classrooms, as some of the items are not applicable to these grade levels. These measures should not be used to assess DAP in classrooms where the constructs and age groups do not match the constructs or age groups the measure was intended to assess.

The *Assessment Profile for Early Childhood Programs* (Abbott-Shim & Sibley, 1992) was originally developed in the 1970’s to measure the quality of the preschool

environment. The tool was recently adapted for use in early elementary classrooms (Huffman & Speer, 2000). However direct inferences of DAP should not be derived from this measure as its original intent was to assess quality and the items are not consistent with NAEYC's guidelines on DAP.

The APEEC (Hemmeter et al., 2001) was designed to assess DAP in kindergarten-third grade general education classrooms. The items on the APEEC align with the guidelines established by the NAEYC (Maxwell, McWilliam, Hemmeter, Ault, & Schuster, 2001). The measure focuses on the physical arrangement and context of the classroom but does not assess aspects of the broader school environment, such as the playground or special subject classes. The APEEC is not designed to include practices that do not occur within the general education settings, which may include special education setting, related services, or special subject classes. The APEEC assesses three domains of classroom practice: physical environment, instructional context, and social context.

The ADAPT (Gottlieb, 1997) was designed to measure DAP in kindergarten to third grade. The ADAPT was found to be moderately related to NAEYC guidelines and the *Assessment Profile for Early Childhood Programs* (Van Horn & Ramey, 2004). The ADAPT focuses on measuring aspects of DAP that are part of everyday classroom activities. The ADAPT consists of three main factors at the classroom level: integrated curriculum, social/emotional emphasis, and child-centered approach (Van Horn & Ramey, 2004).

Developmental Practices and Child Outcomes

A RAND Corporation study of nine early childhood programs indicated that early childhood programs for children at-risk resulted in significant short-term intellectual gains (Karoly et al., 1998). IQ scores were significantly higher for children enrolled in early childhood programs than same-aged peers who were not enrolled in the program. The Consortium for Longitudinal Studies (1983) has shown that one or two years of preschool can improve children's school readiness and early academic achievement.

The Cost, Quality, and Outcomes of Child Care study (1995), an investigation of long-term effects of child care quality demonstrated that children in high-quality early childhood classrooms have better receptive language skills and math skills (Peisner-Feinberg et al., 2000). Children who attended preschools that were characterized by close teacher-student relationships, low levels of problem behaviors, and opportunities for positive social interactions demonstrated greater academic and social competence than children from more disruptive classrooms (Howes, Phillipsen, & Peisner-Feinberg, 2000).

The literature review of outcomes of DAP is broken down into two components, one evaluating the effects of DAP on cognitive and academic outcomes, and the other evaluating the effects of DAP on psychosocial outcomes. Each of these studies reviewed is also summarized in Table 2, which provides a detailed assessment of the design, outcomes measured, and the effects reported.

DAP and Cognitive Outcomes

The research assessing DAP and cognitive outcomes has primarily focused on children in preschool and kindergarten. There are few studies that examine DAP in first

grade and only one study to date has examined DAP in second and third grade (Van Horn & Ramey, 2003). Results of these studies varied on the methodology and criteria outcomes.

The National Institute of Child Health and Human Development, Early Child Care Research Network (2002) reported that children who attended a center-based, high quality childcare had better linguistic, cognitive, and pre-academic outcomes, as well as fewer behavioral problems. Peisner-Feinberg and colleagues (2000) reported that higher quality childcare was more strongly related to better math skills and problem behaviors from the preschool years to the second grade for children whose mothers had less education. Children in child-initiated classrooms demonstrated better verbal skills than children in predominately academically oriented programs (Marcon, 1992). Children's receptive language skills were more developed when developmentally appropriate literacy activities occurred in classrooms with a traditional academic focus (Dunn & Kontos, 1997).

Marcon (1992, 1999) assessed cognitive outcomes of preschoolers in classrooms rated as academically directed (DIP), child-initiated (DAP) and middle of the road classrooms (having characteristics of both DAP and DIP). DAP was rated by teachers using a self-report questionnaire. Children who were in classrooms identified as DAP received higher grades on their report cards overall and in math, science, and verbal skills than children from DIP classrooms. Children who were in the middle of the road classrooms received lower grades than children from both DIP and DAP classrooms. Again, statistical analysis at the child-level rather than the classroom level was a limitation of the

study as there is a possible interdependence in scores of children in the same classroom (Marcon, 1992).

In another study of preschool children, Hirsh-Pasek, Hyson, and Rescorla (1990) evaluated 11 preschools, serving primarily children from high socioeconomic status. Children were grouped into two groups based on observations: academic and child-oriented. Academic outcomes were measured using the *Academic Skills Inventory* and the *Preschool Academic Skills Test First Grade Screening*. No significant differences were found between high and low academic preschool classrooms on either cognitive measure in preschool or in a kindergarten follow up study with effects analyzed at the individual level (Hyson et al., 1990).

DeVries, Reese-Learned and Morgan (1991) compared children who were enrolled in a didactic, constructivist model, and classrooms with a combination of each of the preceding programs. Children from the didactic classrooms performed better on preschool screening tests and first grade achievement tests. However, by third grade there was no significant difference between groups. Although children experiencing a constructivist preschool model demonstrated better sociomoral action and reasoning than children in the direct instruction classrooms. Observing teachers' interactions with children, they found that children from the constructivist classrooms significantly exceeded in comparison to the other classrooms in their use of reciprocal and collaborative negotiation strategies and shared experiences (DeVries et al., 1991).

In another study, DAP was assessed in preschool and kindergarten children (n=227) from diverse SES and ethnic backgrounds (Stipek, Feiler, Daniels, & Milburn, 1995). Classrooms (n=37) were grouped into two groups child-centered and didactic.

Classrooms were rated by observers using the *Classroom Practices Inventory* (CPI; Hyson et al., 1990), parts of the *Early Childhood Environmental Rating Scales* (ECERS; Harms et al., 1989), and an additional scale developed by the authors. Child outcomes were assessed using an adapted version of the *Woodcock-Johnson Achievement Test* (WJ Ach III; Woodcock & Johnson, 1989) and the *Peabody Picture Vocabulary Test* (PPVT; Dunn & Dunn, 1981). Children from didactic classrooms scored significantly higher than children from child-centered classrooms on letters and reading achievement. While, children from higher DAP classrooms were reported to score higher on psychosocial outcomes.

Huffman and Speer (2000) assessed the relationship of DAP in kindergarten and first grade children who were participating in the Head Start/Public School Transition Project. DAP was assessed using the *Assessment Profile for Early Childhood Programs: Research Version*, (Abbott-Shim & Sibley, 1992) dividing DAP into two levels (lower DAP and moderate DAP). Child outcomes were assessed using four subscales of the *WJ Ach III*. Children in moderate DAP classrooms performed significantly better on tests of letter/word identification than children in low DAP classrooms (Huffman & Speer, 2000).

Jones and Gullo (1999) assessed DAP in first grade classrooms (n=293). Developmentally appropriate practices was assessed using the *Teacher Behavior Scale (TBS)* and *Instructional Activities Scale (IAS)* (Charlesworth et al., 1993). Classrooms were placed into three groups, based in the results of the *IAS*: (a) DAP, (b) Average, and (c) DIP. Child outcomes were assessed using *Integrated Assessment System* and the *Social Skills Rating System*. Results indicate that teacher practices, but not beliefs, were

significantly related to child outcomes in math achievement. While the children from DIP classrooms scored significantly higher than the other groups on all language measures. The nested design of the study was problematic, as the number of children in each classroom was very high.

Schweinhart and colleagues (1986), in an experimental long-term follow-up study found no significant differences in cognitive (IQ and achievement) outcomes from children who were at-risk who attended a traditional nursery school program, High/Scope Curriculum in addition to bi-weekly home visitation, or Direct Instruction program. Children who attended a direct instruction model in preschool did not have the same effects on socialization as children who attended a program with a child-centered approach. Children enrolled in the Direct Instruction group reported committing 2 ½ times as many acts of misconduct than the other two groups at age 15. In a follow up study 47% of the Direct Instruction group was treated or identified for emotional impairment or disturbance during their schooling, as compared to 6% of either of the other curriculum groups. At the age of 23 the Direct Instruction group as compared to the curriculum groups had three time per many felony arrests per person, especially incidents of property crime (Schweinhart & Weikart, 1997).

Van Horn and Ramey (2003) evaluated the effects of DAP on academic outcomes on former Head Start students who were in early elementary grades (i.e., first-third). DAP was measured over three consecutive years in early elementary classrooms (n=3,476) using the ADAPT. Child outcomes were measured in the areas of reading and mathematics achievement, and receptive language (n=4,764). Reading achievement was measured with two subtests of the *Woodcock-Johnson Achievement Test*: Letter-Word

Identification Test and Passage Comprehension (Woodcock & Johnson, 1990). Math achievement was measured using the *Woodcock-Johnson Achievement Test* subtests: Calculation and Applied Problems. Receptive language skills were measured using the PPVT. This study was the first to use hierarchical linear models in evaluating the effects of DAP. Findings indicated that different aspects of DAP: Integrated Curriculum, Social/Emotional Emphasis, and Child-Centered Approaches did not relate to academic performance. It should be noted that mean subscale scores by grade on the ADAPT ranged from 2.32-2.82 and possible scores for each subscore range from a low of 1 to a high of 5 (Gottlieb, 1997). The levels of DAP should also be taken into account when reporting the results of the study. In addition, the study did not assess the effects of DAP on psychosocial outcomes.

The current literature presents problematic issues of assessing the impact of DAP on child outcomes. The first issue pertains to the assessment approach at the classroom and child levels. To date, no clear guidelines have been developed on appropriate methods to measure DAP in early elementary classrooms. The studies that have examined the relationship of DAP to academic performance all have used standardized tests of achievement or cognitive ability as the primary outcome. Use of standardized assessments to assess child outcomes is not developmentally appropriate and inappropriately rely on discrete skills to measure child outcomes. Only one study to date (Van Horn & Ramey, 2003) assessed how specific factors of DAP in the classroom impact child outcomes. Van Horn and Ramey (2003) study was unique in comparisons to other studies in the literature, as this was the first study to be conducted as a nested data analysis. Statistical analysis at the child-level rather than the classroom level can be

problematic as there is a possible interdependence in scores of children in the same classroom, resulting in overly liberal significance tests.

DAP and Psychosocial Outcomes

DAP has been demonstrated to have positive effects on social and emotional outcomes. The majority of research studies have focused on the preschool and kindergarten years, with only two studies evaluating first graders. These studies have examined the effects of DAP on stress, self-concept, social skills, and problem behaviors.

One of the primary concerns with didactic or direct instruction in early elementary classrooms was that it would increase stress for young children (Elkind, 1986). Stipek and colleagues (1995) assessed the effects of classroom practices on anxiety, perceptions of ability, and several other socioemotional measures on preschool and kindergartners (n=227). Classrooms (n=32) were rated by observers using the *Classroom Practices Inventory* (CPI; Hyson et al., 1990), parts of the *Early Childhood Environmental Rating Scales* (ECERS; Harms et al., 1989), and an additional scale developed by the authors. Classrooms were split into two groups based on results of the classroom ratings: child-centered and didactic. Child assessments were completed to measure academic achievement and emotional competence (perceptions of ability, expectations for success, dependence, enjoyment of school and challenges, and anxiety). Academic achievement was assessed using an adapted version of the *Woodcock-Johnson Achievement Test* (Woodcock & Johnson, 1989), as well as 66 items from the *Peabody Individual Achievement Test* (PIAT; Dunn & Markwardt, 1970). Results indicated that children from child-centered classrooms showed significantly less anxiety and had significantly better perceptions of their abilities than peers attended child-centered classrooms. In addition,

these children were reported to take more pride in their tasks and had higher expectations for success.

Jambunathan and colleagues (1999) examined the relationship of DAP and self-competence among preschoolers. Classrooms (n=7) were measured using the *Checklist for Rating Developmentally Appropriate Practices in Early Childhood Classrooms* (Charlesworth et al., 1993). Self-confidence was assessed at the individual level (n=91) using the *Pictorial Scale of Perceived Competence and Social Acceptance* (Harter & Pike, 1984). Results at the child level indicated that use of DAP was found to be a significant predictor of the peer acceptance component of the *Pictorial Scale of Perceived Competence and Social Acceptance*.

In two studies (Burts et al., 1990, 1992), examined the relationship of DAP and stress. In the first study, Burts et al. (1990) examined stress behaviors of children in two kindergarten classrooms (n=37) using the *Classroom Child Stress Behavior Instrument (CCSBI)*. The classrooms were categorized as either DAP or DIP based on teacher response to the *Teacher Belief Scale (TBS)* and *Instructional Activity Scale (IAS)*, observer ratings were used to validate the teacher questionnaire responses. Stress behaviors were coded in five settings using the CCBI. Results indicated that children in DIP classrooms scored higher on the CCBI than children in DAP classrooms. Children in DIP classrooms displayed more stress in whole group and workbook activities, while those in DAP classrooms showed more stress when in transition between activities and learning centers (Burts et al., 1990).

Burts and colleagues (1992) further examined the effects of DAP and stress. Classrooms were classified as DAP or DIP based on teacher responses on the TBS and

IAS, used in the previous study (Burts et al., 1990). Over 200 teachers completed the measures, those that scored more than one standard deviation from the mean were recruited for the study. Observer ratings were again used to validate the teacher responses. The CCSBI, which was used in the previous study, was used to measure stress. At the classroom level, children in DAP classrooms experienced less overall stress than children in DIP classrooms for individual but not group activities. At the child level, results showed a significant interaction between classroom type and gender. Boys in DAP classrooms exhibited less stress than those in DIP classrooms, there were no difference between classrooms for girls. Black children in DIP classrooms demonstrated more stress than White children, there were no difference between groups in DAP classrooms.

Dunn and colleagues (1994) assessed the effects of DAP in preschool classrooms. Classrooms (n=30) were assessed using two subscales of the ECERS (Harms & Clifford, 1980) measuring the quality of language and reasoning environment and developmentally appropriate activities. Child outcomes were assessed (n=60) using the Preschool Inventory. Dunn and Kontos (1994, 1997) reported that preschool children enrolled in child-initiated classrooms displayed lower levels of test anxiety than children enrolled in academically directed programs. Limitations of this study include the nested data analysis of the study and the use of the ECERS to measure DAP. The ECERS is considered a measure of childcare quality and is not designed to measure DAP (Hyson et al., 1990).

The following study examined the effects of DAP on more general social skills in first graders (n=293) (Jones and Gullo, 1999). Teachers in 13 classrooms completed the *IAS* and *TBS* (Charlesworth et al. 1993) to indicate their agreement regarding their

practices of DAP in the classrooms. The *Social Skills Rating System* was completed by the teachers on each child. At the child level, children in classrooms where teachers reported to have more DAP beliefs and practices were reported to demonstrate a positive significant difference in social skills.

Another study examined the effects of DAP on more global social skills of preschool and kindergarten children (n=295) (Marcon, 1992, 1993). This study, which was discussed in the cognitive section, measured adaptive behaviors using the *Vineland Adaptive Scale for Children* (Sparrow, Balla, & Cicchetti, 1985) which was completed by the classroom teacher (n=51). Results at the child level indicated no differences between the child-initiated (DAP) classrooms and academically directed classrooms (DIP) on any of the four Vineland subdomains or overall adaptive scale. Significant interaction was found between classroom and sex. Boys in DAP classrooms scored higher on adaptive measures than those in DIP classrooms. While girls in DIP classrooms scored higher on adaptive measures than those in DAP classrooms.

Hart and colleagues (1998), assessed DAP and stress behaviors in preschool classrooms (n=6). Classrooms were classified as DAP or DIP based on teacher response on the TBS and IAS. Children in DIP classrooms were reported to demonstrate greater stress behaviors such as nail biting and aggression towards other children than children in more DAP classrooms (Hart et al., 1998).

Hirsch and colleagues (1990), described in the cognitive outcomes section, assessed social outcomes of preschool and kindergarten children. A battery of social and emotional tests were administered: creativity was measured with the *Torrance Test of Preschool Creative Thinking*, self confidence was measured using the *Harter Pictorial*

Scale of Perceived Confidence (Harter & Pike, 1984), attitude towards school was measured using the Measurement of Young Children's Attitudes Towards School interview, and test anxiety was assessed using a measure developed by the authors. Results at the child-level indicated that children from more DAP classrooms demonstrated significantly less anxiety than children in less DAP classrooms.

The results on the effect of DAP on psychosocial outcomes are more significant than the relationship to cognitive and academic achievement. All studies examining the relationship between DAP to stress and anxiety found significant relationships. Strong evidence was indicated for an interaction effect between sex and DAP in predicting outcomes (Burts et. al., 1992; Marcon, 1993). Boys performed better in DAP classrooms than DIP classrooms; however, the opposite was true for girls.

Table 2

Studies Measuring Child Outcomes of DAP

Study	Sample	Measures	Outcomes
Burts et al. (1990)	N=37 2 classrooms Kindergarten	Teacher Behavior Scale Instructional Activities Scale Classroom Child Stress Behavior	Children in DIP classrooms demonstrated more total stress and stress in workbook and group activities Children in DAP classrooms demonstrated more stress in center activities and transitions
Burts et. al. (1992)	N=204 12 classrooms Kindergarten	Teacher Behavior Scale Instructional Activities Scale Classroom Child Stress Behavior	Boys in DAP classrooms demonstrated less total stress than those in DIP classrooms. Black children demonstrate more stress on some measures than White peers in DIP classroms
Burts et al. (1993)	N=204 60 classrooms Kindergarten First	Teacher Behavior Scale Instructional Activities Scale GPA from first grade report cards	High SES did not differ by DAP Low SES performed better in DAP classrooms than DIP classrooms.
Hirsh-Pasek, Hyson, & Rescorla (1990)	N=90 11 classrooms Preschool Kindergarten	Classroom Practices Inventory Academic Skills Inventory Observed ratings of child anxiety Torrance Test of Preschool Creative Thinking Pictorial Scale of Perceived Competence and Social Acceptance for Young Children Measurement of Young Children's Attitudes Toward School	Children from low academic classrooms demonstrated less anxiety

Table 2 (*continued*).

Study	Sample	Measures	Outcomes
Huffman & Speer (2000)	N=113 28 classrooms Kindergarten First Grade	Assessment Profile Woodcock Johnson Achievement Test- selected items	Children in moderate classrooms improved more during one year than children in low DAP classrooms
Jones & Gullo (1999)	N=293 13 classrooms First Grade	Teacher Behavior Scale Instructional Activities Scale Integrated Assessment System Social Skills Rating System	Children from classrooms with higher DIP teacher beliefs scored higher on all language measures Children from classrooms with higher DAP beliefs and practices scored higher on social skills Children from classrooms with average practices scored higher on math than those from DAP or DIP classrooms
Marcon (1992)	N=295 43 classrooms Preschool	Vineland Adaptive Behavior Scale Early Childhood Progress Report Teacher rated measure developed for study	Children in classrooms rated DAP scored higher overall GPA DAP and DIP classrooms scored higher than middle-of-the road classrooms on adaptive behaviors

Table 2 (*continued*).

Study	Sample	Measures	Outcomes
Marcon (1993)	N=307 86 classrooms Kindergarten	Vineland Adaptive Behavior Scale Early Childhood Progress Report Teacher rated measure developed for study	Children in classrooms rated higher on socioemotional areas received better grades than children in academic classes Girls scored higher on adaptive behaviors in academic classrooms and boys in socioemotional classrooms
Stipek et al, (1995)	N=227 32 classrooms Preschool Kindergarten	Woodcock Johnson Achievement Test-selected items Peabody Individual Achievement Test-selected items Observer developed rating of DAP	Children in academic (DIP) classrooms performed better on reading achievement, showed higher anxiety, more dependency, and lower expectation of success.
Stipek et al. (1998)	N=228 42 classrooms Preschool Kindergarten First Grade	Woodcock Johnson Achievement Test-selected items Peabody Individual Achievement Test-selected items McCarthy General Cognitive Test- selected items Observer developed rating of DAP	
Van Horn & Ramey (2003)	N=4,764 1,537 classroom First Grade Second Grade Third Grade	Woodcock Johnson Achievement Test-selected items Peabody Picture Vocabulary Test-Revised Developmentally Appropriate Practices Team	DAP observed in classrooms accounts for little to no variance with individual academic outcomes.

Assessing and Evaluating Early Childhood Outcomes

Evaluating the effects of curriculum and early childhood demonstration projects can be a difficult and multifaceted endeavor. There are a multitude of difficulties associated with measuring learning and development with young children. Each early childhood demonstration study or research study may have different goals or assess different outcomes at child and classrooms levels. To date, no clear guidelines have been developed on appropriate methods to measure DAP in early elementary classrooms. Comparing program outcomes can be difficult when each may have a different methodology and design.

Of the studies that have examined the relationship of DAP to academic performance, all have used standardized tests of achievement or cognitive ability as the primary outcome. Use of standardized assessment to assess child outcomes are not developmentally appropriate and inappropriately rely on discrete skills to measure child outcomes. In addition, standardized tests of cognitive ability lack validity in young children. Early childhood professionals have voiced concerns with the use of traditional, norm-referenced assessment (Neisworth & Bagnato, 2004). However, researchers continue to use standardized tests, as the same tool can be used to compare children across different settings (Van Horn & Ramey, 2003). An alternative to standardized testing is the use of authentic assessment. Virtually no studies to date have used authentic assessment when measuring for effects of DAP in early childcare classrooms.

Authentic Assessment

Authentic assessment and program evaluation research is an alternative evaluation design to document intervention programs that focus to predict outcomes in natural

community settings (Bagnato, Grom, & Haynes, 2003). The intent of authentic assessment is to evaluate children's abilities in the "real world" context where they are evaluated on tasks that are meaningful and apply to essential knowledge and functional skills (Wiggins, 1993). Criticism exists that alternative methods of assessment, such as authentic assessment, lack experimental rigor (Yoshikawa, Rosman, & Hsueh, 2002). However, typical research based programs lack generalizability to real life situations. By using the authentic assessment approach, researchers are able to "capture authentic portraits of naturally occurring competencies of young exceptional children in every day settings and routines-the natural developmental ecology for children" (Neisworth & Bagnato, 2004, p. 198).

The Scaling Progress in Early Childhood Settings (SPECS) Evaluation Team was selected to conduct a longitudinal evaluation of the Early Childhood Initiative (ECI) project. The SPECS evaluation team measures effectiveness through authentic assessment and program evaluation research. Bagnato and colleagues (2003) reported that the approach of the SPECS Evaluation team provides a unique evaluation approach in comparison to typical research demonstration programs. The SPECS Evaluation Team utilized a "natural experiment" approach rather than a laboratory setting in program and child evaluation methods. A collaborative research model was implemented with community partners. All children, families, and programs were evaluated and there were no exclusions to participate in the study. Assessment included ongoing observation from consistent caregivers in the child's classroom based on sample skills from the preschool's developmental curriculum that are teachable and predictive of future kindergarten success. Feedback is provided to the child's teachers, parents and community about the

child's development, learning as well as needed program refinements (Bagnato et al., 2002).

Transition to Elementary School: School Readiness

Results of the US Department of Education's Early Childhood Longitudinal Study, Kindergarten Cohort, indicated that children who are identified at-risk start kindergarten significantly below their more affluent peers. As children move through school, the social stratification and educational outcomes gap increases (Entwisle, Alexander, & Olson, 1997). Schools serving low-income children receive fewer resources, have difficulty recruiting highly qualified teachers, experience more challenges in addressing student's complex needs, and receive less support from parents (Lee & Burkam, 2002).

Children at-risk need and benefit the most from high quality learning environments. Yet these are the children beginning kindergarten in lower quality schools. These children attend kindergarten with less qualified teachers and less resources (Lee & Burkman, 2002). Lee and Burkam (2002) reported that African American children attend schools characterized by lower levels of teachers who report a willingness to take responsibility for their student's learning, (effect size of -.31) and professional community (effect size of .11). While children whose parents have more education are more likely to attend schools with teachers who exhibit positive attitude. Alexander, Entwisle, and Thompson (1987) reported that teachers tend to rate children from low income or minority families lower than they rate other children regarding maturity and classroom behavior, in addition to holding lower expectations for these children.

Continuity of high classroom quality is often not present when children enter elementary school. Peisner-Feinberg and colleagues, (2000) reported that 44% of children experience continuity in pedagogy from preschool to kindergarten. While, from kindergarten to second grade only 23 % of children experience continuity. Children who are at-risk are more likely to experience declines in quality of their education than their affluent peers (Peisner-Feinberg et al., 2000).

Early childcare programs are developed to prepare children who are at-risk to be ready for school and prepared to learn which will protect them from tracking and grade retention (Entwisle, 1995). The research is clear that children who receive high quality intensive early childcare programs entered school prepared to learn. Children's performance by kindergarten demonstrates the influence of earlier experiences. While their performance in second to third grade provides more information regarding the influence of early elementary and school success. By third grade, most children's academic trajectories become more stable, and accordingly more difficult to change (Alexander & Entwisle, 1988; Pianta & Cox, 2002). Children's developmental status in the mid-elementary (second and third) is likely to provide a good indication of the long-term effects of early childhood experiences on children's school success. Cognitive readiness in kindergarten indirectly impacts first and second grade outcomes in low-income children (Reynolds, 1991). However, the direct effects of early childhood intervention on cognitive gains begin to dissipate by the third grade, and there were no differences between participants and controls (McKey et al.; White, 1985).

Maintaining Early Childhood Program Benefits

Elementary schools play a role in sustaining the gains made by children in early childcare programs. Providing comprehensive services when children transition from preschool to kindergarten can improve their transition, maintain parent involvement, and coordination of academic and social services (Pianta & Cox, 2002; Ramey & Ramey, 1992). When children transition to kindergarten, the initial effects or gains of cognitive functioning are not maintained without extended intervention. Prolonged effects on achievement, school success, and socialization are easier to sustain without the presence of school intervention (Reynolds, 1994). Researchers have recommended that the comprehensive services of early intervention programs should last longer into early elementary grades to be most effective at addressing the impact of fading effects (National Head Start Association, 1990).

Entwisle and colleagues, (1997) reported that low SES children in the Baltimore Beginning School Study (BSS) performed as well or better than their more affluent classmates when schools are open. The BSS children, whether they attended high or low SES schools, gained on average the same amounts on standardized tests during the school year. Children who are in the low SES cohort fell behind in the summer. While, high SES children's learning continues during the summer due to greater availability of resources. The achievement gap between high SES and low SES children in the BSS increased noticeably as a result of differential gains during the summer (Entwisle et al., 1997).

The North Carolina Abecedarian Project school-age intervention study was designed to support children's academic development by increasing and enhancing parent

involvement in the educational process during school age (Campbell & Ramey, 1995). Each family was assigned a home/school resource teacher (HST) for the first three years their child attended elementary school. The HST provided parents with home-based activities custom designed for each child to reinforce the basic reading and mathematics concepts being taught at school. These activities were individually designed on the classroom teacher's input about concepts and skills the child was learning. The HST conducted classroom visits every other week to consult on aspects of the child's adjustment to school (e.g., attendance problems and social relationships). On alternate weeks, the HST provided new learning activities to the home, explaining and demonstrating them to the parents. In addition, the HST assisted families with non-school related problem's that may impact their child's learning, such as, need for medical attention, better housing, employment, referring families to appropriate social services.

Researchers evaluated the differential effects of preschool and follow-up intervention of children enrolled in the Carolina Abecedarian Project. Children who participated in the preschool program and school age intervention demonstrated significant results in reading achievement, math achievement, and grade retention by the end of their second year (Horacek, Ramey, Campbell, Hoffmann, & Fletcher, 1987).

Results indicate that the school-age intervention alone did not have an independent effect on achievement or grade retention above preschool intervention. Campbell and Ramey (1994) conducted follow-up analyses through age 15 reporting that only the preschool intervention significantly contributed to child outcomes. Only when paired with the preschool intervention was the school-age component effective for reading achievement. Although, children who participated in the follow up intervention

of the Chicago Child Parent Expansion program for 2-3 years significantly benefited from the intervention above and beyond the preschool intervention (Reynolds, 1994).

The Head Start Transition study indicated that, children who experience effective transitions before school and into school age continue to exhibit a steady growth in academic skills (Ramey & Ramey, 1992). On the other hand, students who experience ineffective transitions are more likely to experience difficulty socially and academically in school (Ramey & Ramey, 1991).

Children's early school experiences were impacted by declining patterns of achievement, frequent school moves, and growing incidence of school retention (Reynolds & Bezruczko, 1993). School mobility is more pervasive with at-risk children. School mobility has been found to have negative effects on achievement an adjustment in low-income children (Reynolds, 1992).

The Head Start Transition study indicated that, children who experience effective transitions before school and into school age, continue to exhibit a steady growth in academic skills (Ramey & Ramey, 1994). While students who experience ineffective transitions were more likely to experience difficulty socially and academically (Ramey & Ramey, 1991).

Summary

Policy makers and educators continue to strive for all children to meet grade level academic standards. However, children who are at-risk enter kindergarten behind their more affluent peers (NCES, 2000a). Once these children are behind, it is difficult to catch up. Research has demonstrated that children who are at-risk benefit from high quality intense early childhood educational experiences (Ramey & Ramey, 1998).

Limited research has been conducted on methods on how the benefits from early intervention programs can be maintained during elementary school. Specifically, how during early elementary school years does the level and type of DAP impacts child outcomes.

The current study examined data provided by the ECI project, an early childhood demonstration project that was based on elements of an effective early intervention program for children at developmental risk as identified by Ramey and Ramey (1998). Children who participated in the ECI project were followed in early elementary school (kindergarten through second grade). It was expected that children who in classrooms that are reported to have high levels of DAP would continue to maintain age-level academic success.

CHAPTER III

METHOD

The methodology section of this dissertation will begin with a review of the Early Childhood Initiative (ECI) project, as data for this study was obtained from the ECI project study. Participants in the current study were children in early elementary school (kindergarten through second grade) who were previously enrolled in the ECI project and are continuing to be followed by the SPECS Evaluation, School Strand Team. Following this description, a review of the measures selected for the current study will be provided. These measures used include: *The Assessment of Practices in Early Elementary Classrooms* (APEEC; Hemmeter et al., 2001) and the *Basic Student Skills Inventory-Third Edition* (BSSI-3; Hammill, Leigh, Pearson, 1998). Following reviewing each measure, the data analysis for the current study will be discussed. The final section of this chapter will be the statistical analysis section. In the statistical analysis section, each statistical test that was computed for each of the three research questions will be discussed in detail.

The Early Childhood Initiative Project

The Early Childhood Initiative (ECI), (Bagnato et al., 2002) was developed to provide quality early childcare to families living in high-risk neighborhoods. The project was funded through a local community foundation and corporate support. The ECI provided children from infancy to preschool with quality early childcare experiences to promote early learning and school readiness skills. The ECI program emphasizes ongoing mentoring intended to increase program quality, collaboration with families, curriculum

development based on individual child assessments, and collaborative relationships with community agencies.

The National Association for the Education of Young Children (NAEYC) standards were used as a marker for developmental appropriateness, as all of the ECI programs scored in the high and medium quality ranges. High quality was obtained in 71% of the programs and medium quality was achieved in 29% of the programs (Bagnato, 2003). The length of time children were enrolled in high quality programs have been found to impact sustained cognitive outcomes. Results from the first-phase of the ECI study indicated that children who participated in the program for the longest period of time demonstrated patterns of progress that exhibited developmental gains that exceeded maturation expectations (Bagnato et al., 2002). The ECI enrolled children from infancy to 5 years of age. Initially when children entered the program, 86% were classified as “high-risk,” defined as having delays in overall thinking, language, social, and school-readiness skills as measured by the *Developmental Observation Checklist System* (DOCS; Hresko et al., 1994). On entering the program fourteen percent of the participants were deemed to have delays significant enough to qualify for special education services in Pennsylvania. While 18% of the participants entered the ECI program demonstrating social skills and self-control behaviors significant enough to qualify them for a mental health diagnosis (Bagnato et al., 2002).

Participants

The data for this study will be collected as part of the ECI Project (Bagnato et al., 2002). Participants in the current study included children and their classrooms. Outcomes were measured at the child level and DAP was measured at the classroom

level. The children were in early elementary school (kindergarten through second grade) and were previously enrolled in the ECI project and are continuing to be followed by the SPECS Evaluation, School Strand Team. The APEEC was administered in 2 consecutive years, yielding data from 77 children in 70 classrooms. Data were collected on 23 children from both cohorts of data collection. Of the 70 classrooms observed, 31 children were in kindergarten classrooms, 37 children were in first grade, and 30 children were in second grade.

Table 3

Frequencies by grade for two phases of the ECI, School Strand Data Collection

	<u>2003</u>	<u>2004</u>
Kindergarten	17	14
First	24	13
Second	12	18
Total	n=53	n=45

Child Measures

The *Assessment of Practices in Early Elementary Classrooms* (APEEC; Hemmeter et al., 2001) is a rating scale designed to measure DAP in kindergarten to third grade general education classrooms. The measure focuses on the physical arrangement and context of the classroom but does not assess aspects of the broader school environment, such as the playground or special subject classes. The ratings should not be impacted if a special subject teacher (i.e., music, art, and computer) comes into the

general education classroom, as well as if a child leaves the classroom for special education classes. The APEEC was designed to measure DAP in a general education setting. Children with disabilities need to participate in the general education classroom for at least part of the school day. The APEEC is not designed to include practices that do not occur within the general education settings, which may include special education setting, related services, or special subject classes. The APEEC consists of 16 items and are rated on a 7 point Likert scale with descriptors at “1”, “3”, “5”, and “7” behavioral anchors (1=inadequate to 7= excellent) representing the level of developmentally appropriate practices in the classroom. Descriptor notes and footnotes are provided for clarification below some items to assist in determining the value to be assigned. The APEEC assesses three domains of classroom practice: physical environment, instructional context, and social context.

The APEEC was administered by a researcher trained to conduct a structured teacher interview and direct observation of the classroom. The APEEC manual states that it is possible to complete the APEEC in less than a day, however, the authors recommend to observe as much of a full day’s in-class activities as possible. The observer should arrive to classroom before the children arrive. The observation should be followed by a 20 to 30 minute teacher interview preferably near or at the end of the school day. Suggested interview questions are provided on the score sheet. The observer may ask questions that are not listed on the score sheet, however, the interviewer must be careful to phrase questions in an open-ended and non-leading method.

Interrater agreement and validity data for the APEEC were collected in 69 kindergarten through third grade classrooms (Hemmeter et al., 2001). Interrater agreement at the descriptor level among two observers averaged 86% with a range of 76% to 93%. At the item level the interrater agreement was 58% ranging from 31% to 81%, and the average percentage of agreement within 1 point was 81%, ranging from 50% to 100%. The median weighted Kappa was .59. Weighted Kappas of .50 or higher are considered an acceptable level of agreement (Cohen, 1968). For the total score, the interclass correlation between the two observers' ratings was .86, suggesting that a high level of interrater agreement can be established with the APEEC.

Construct validity was determined by comparing the APEEC to two other measure of developmentally appropriate practices, the *Assessment Profile for Early Childhood Programs* (Abbott-Shim & Sibley, 1988) and the *Teacher Beliefs and Practices Scale* (TBPS; Buchanan, Burts, Binder, White, & Charlesworth, 1998). Modest to high correlations were obtained (.55 to .67) suggesting that the APEEC is a valid, reliable tool for measuring individualized and developmentally appropriate practices in kindergarten through third grade classrooms (Hemmeter et al., 2001). However, it should be noted that the author stated in manual that additional research is needed to further understand the psychometric properties of the APEEC.

Classroom Measures

The *Basic Student Skills Inventory- Third Edition* (BSSI-3; Hammill, Leigh, & Pearson, 1998) is a normative measure of early learning and basic competencies from pre-kindergarten to 3rd grade. The BSSI-3 was designed to gain information about a child's development of the basic skills considered critical for school success. The BSSI-3

was designed to be completed by the child's classroom teacher. The teacher rates the student according to their knowledge of how the student compares with typically developing students of the same age on each of the skills. The BSSI-3 was standardized with 757 children; matching the demographic data of the 1996 US census. The BSSI-3 is rated on a 4-point Likert scale (0 = not performing the skill, 1= beginning to perform, 2 = performing most of the time, and 3 = performing at a level that indicates mastery). The BSSI-3 consists of 137 items covering early abilities in six domains: spoken language, reading, writing, mathematics, classroom behavior, and daily living skills. The BSSI-3 is a norm-referenced, standardized instrument. Scores are reported in standard score terms with a mean of 100 and standard deviation of 15. The BSSI-3 demonstrated high levels of internal consistency. The mean coefficient alpha of the subscales is .91. Test-retest reliability of a two week interval is high with a coefficient of .99. Interrater reliability is excellent with a coefficient of .96. The manual reports moderate to high levels of concurrent validity. It should be noted that the concurrent validity study was conducted with 42 preschool students receiving services from the Association for Retarded citizens.

Design and Procedure

Data for this study were obtained from the ECI Project; School Strand Evaluation Team. The objective of the ECI Project was to enroll unserved children in high-risk urban neighborhoods in Pittsburgh, PA into high quality early care and education programs. The design of the ECI Project was based on seven core features identified by Ramey and Ramey (1998) as essential features of early childcare programs that have been associated with initial and long-term outcomes for children and families. The Scaling Progress in Early Childhood Settings (SPECS) Evaluation Team from Children's Hospital of

Pittsburgh and the UCLID Center at the University of Pittsburgh was selected by the Heinz Endowments and the ECI Management Council to conduct the ECI's longitudinal evaluation and providing quality improvement feedback.

The SPECS Evaluation Team implemented an authentic assessment and program evaluation strategy of "natural experiments" rather than laboratory settings (Bagnato et al., 2002). Criticism exists that alternative methods of assessment lack experimental rigor, as the more natural the experimental setting becomes, the more difficult it is to control for extraneous variables (Yoshikawa, Rosman, & Hsueh, 2002). Yet, the more a research study is narrowed and controlled, the less realistic and generalizable it becomes. The focus of the ECI project was to predict child outcomes, when the intervention occurred in a natural setting. All children were included in the evaluation and there was no control group; each child and program is its own control. The SPECS Evaluation Team Consultants provided training, mentoring and modeling of appropriate assessment techniques to the teachers.

The current study focused on child, program, and school transition outcomes. The primary aim of the current study was to examine the child's academic functioning in the spring prior to transitioning to kindergarten, and in the end of each academic year in relationship to classroom DAP. Classroom quality was measured throughout each child's enrollment in the ECI program using the ITERS/ECERS. High quality was obtained in 71% of the programs and medium quality was achieved in 29% of the programs (Bagnato, 2002). DAP was measured, using the APEEC at the end of the academic year in early elementary school. The SPECS School Strand team followed children's academic performance when children transitioned from the ECI project. The level of

DAP in children's classrooms were assessed in the spring of 2003 and 2004 by members of the SPECS research team.

ECI children's families were contacted by the SPECS Evaluation Team after their child transitioned to elementary school, to continue to monitor their child's academic and behavioral progress. Once permission was granted, a member of the SPECS Evaluation Team contacted the principal of the child's elementary school. After the principal gave permission to collect information, individual teachers were contacted. A member of the SPECS Evaluation Team provided the teachers with assistance and training on completing the measures. Data were collected during the third quarter of the academic year.

The BSSI-3 was completed by the classroom teachers based on their knowledge of the child, observation, and review of the children's work performance, during the third quarter of the academic year. The classroom teachers completed the BSSI-3 on children their from kindergarten to second grade. The regular classroom teacher and special education teacher collaborated to complete the BSSI-3 for children who received special education services.

Developmentally appropriate practices of school age classrooms were identified through the APEEC. The APEEC was completed by a trained researcher from the SPECS Evaluation Team. Interrater agreement was collected at the total score and the descriptor level. The observer arrived at the classroom before the children arrived and completed a minimum of one half of a day observation of the regular education classroom. Following the observation, a 20-30 minute teacher interview was conducted.

Data Analysis

Data was entered into SPSS 14.0 for windows. Descriptive statistics (i.e., means, standard deviations, frequencies, and percentages) were calculated for demographic data and research variables, as deemed appropriate. Inferential statistics was computed using simple linear regression, ANOVA, and MANCOVA. The assumptions of regression, linearity, constant variance, and multicollinearity were assessed. The assumptions of ANOVA were assessed, and effect size and power calculated. The overall test of homogeneity of variance and normality were calculated on the ANCOVA.

The first research question examines the relationship between DAP in early elementary school classrooms and children's academic performance. To examine the first research question (1a) *Does DAP in early elementary school (kindergarten through second grade) predict overall age expected academic performance in early elementary school from children who were enrolled in the ECI Project?* Academic performance was assessed using the average BSSI-3 total standard score of children in each classroom. Each classroom was measured for DAP, using the APEEC total score. Some classrooms will have one child within the classroom from the ECI Project early childhood sample and there will be some classrooms where there is more than one child. The distribution of BSSI-3 scores were analyzed to determine if there is undue impact from an outlier. If an outlier was present the score was dropped from the average score. The classroom will serve as the level of analysis, as children within the same classroom cannot be assigned different levels of DAP (Van Horn, Karlin, Ramey, Aldrige, & Snyder, 2005). The standard error of measurement was computed using published reliability coefficient from

the manual (Hemmeter et al, 2001). A simple linear regression was computed. The predictor variable is the APEEC total score. The criterion variable is the BSSI-3 average standard score for the classroom. The next part of research question one addresses the type of DAP: *(1b) Does the type of DAP in early elementary school (i.e., Social Context, Physical Environment, and Instructional Context, subscales of the APEEC) predict overall age expected academic performance from children who were enrolled in the ECI project?*

The second research question addressed the relationship between children within classrooms: *(2a) Do children within early elementary classrooms demonstrate different levels of overall age expected achievement across different levels of DAP (Inadequate, Minimal, Good, and Excellent).* An Analysis of Variance (ANOVA) was computed. The independent variables are the categorized DAP levels (Inadequate, Minimal, Good, and Excellent). The levels of DAP were computed according to the APEEC manual guidelines. The Standard Error of Measurement was computed using published reliability coefficient from the manual (Hemmeter et al, 2001). The distribution was analyzed to determine if there was undue impact from an outlier. If an outlier was present the score was dropped from the average score. The dependant variable is the total standard score from the BSSI-3. Research question (2b) was *Does the Social Context of the classroom influence age expected behaviors of children in the classroom?* An Analysis of Variance (ANOVA) was computed as the Social Context subscale composite score on the APEEC as the independent variable and the BSSI-3 Classroom Behavior standard score as the dependant variable. The third component of the second research question (2c) *Does the Instructional Context of the classroom influence age expected*

behaviors of children in the classroom? An Analysis of Variance (ANOVA) was computed with the Instructional Context composite score on the APEEC as the independent variable and the BSSI-3 Classroom Behavior standard score is the dependant variable.

The third research question addressed the children's performance transitioning from preschool when comparing levels of DAP. The first question (3a) examined *Do children who are enrolled in minimal to excellent rated DAP classrooms in Kindergarten, after transitioning from the ECI program, maintain age level academic achievement from the end of preschool to the end of kindergarten?* A Multivariate Analysis of Covariance (MANCOVA) was computed. The independent variable was the APEEC total classroom score. The dependant variables were the mean standard score from each of the BSSI-3 subscales Spoken Language, Reading, Writing, and Mathematics from early elementary school. The covariate is the BSSI-3 overall standard score from preschool. The next component of the third research question (3b) examined *Do children who are enrolled in minimal to excellent rated DAP Kindergarten classrooms, after transitioning from the ECI program, maintain age level expected Daily Living Skills and Classroom Behavior from the end of preschool to the end of kindergarten?* A Multivariate Analysis of Covariance (MANCOVA) was computed. The independent variable is the APEEC total classroom score. The dependant variables were the standard score from each of the BSSI-3 subscales Classroom Behavior and Daily Living Skills. The covariate is the BSSI-3 overall standard score from preschool.

CHAPTER IV

RESULTS

The results section is organized in the following manner. First descriptive information on participants including child level and classroom level are provided. Next, results of data pre-analysis and tests of statistical assumptions that were performed to determine the appropriateness of running the main analysis for each research question are provided. Last, the results of each research question are provided.

Descriptives

The current study examined data provided from the Early Childhood Initiative (ECI) Project. Data for the current study was obtained from two consecutive years, 2003 and 2004. The analyses for the current study examined data from 53 children from 44 classrooms the first year and 45 children from 27 classrooms the second year. Data on 23 children were collected during both time points. Frequencies of participants at each grade level and each year are provided in Table 4. Information regarding classroom data is provided in Table 5. There was an even distribution of classroom data by grade level.

Table 4

Frequencies of Participants by Classrooms and Grade Level

<u>Grade Level Total</u>	<u>2003</u>	<u>2004</u>
Kindergarten	17	14
First	24	13
Second	12	18
Total	53	45

Table 5

Means of the APPEC Subscales and Total by Grade

Grade	<i>n</i>	APPEC Scores							
		Physical		Instructional		Social		APPEC total	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Kindergarten	16	3.76	.97	3.53	1.87	3.28	1.77	3.49	1.52
First	26	3.49	.95	3.72	1.33	3.17	1.15	3.41	1.08
Second	28	3.21	.91	3.40	1.29	3.16	1.18	3.31	.94
Total	70	3.44	.95	3.55	1.44	3.19	1.31	3.39	1.13

Note. APPEC = Assessment of Practices in Early Elementary Classrooms; Physical = Physical Environment subscale on the Assessment of Practices in Early Elementary Classrooms; Instructional = Instructional Context of the Assessment of Practices in Early Elementary Classrooms; Social = Social Context of Assessment of Practices in Early Elementary Classrooms.

Table 6

Means of the BSSI-3 Subscales and Total by Grade

		BSSI-3											
		Language		Reading		Writing		Math		Living		Behavior	
Grade	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
K	31	105	19	102	10	101	5	102	5	99	10	97	13
1st	40	107	21	109	13	104	12	112	13	100	16	99	15
2 nd	29	100	20	103	12	104	11	106	12	101	14	101	15

Note. BSSI-3 = Basic Student Skills Inventory-Third Edition; Language = Spoken Language subscale from the BSSI-3; Writing = Writing subscale from the BSSI-3; Math = Math subscale from the BSSI-3; Living = Daily Living subscale from the BSSI-3; Behavior = Classroom Behavior Subscale from the BSSI-3.

Pre-Analysis

Prior to running the main analyses, pre-analyses were computed to determine if the results of the main analyses are valid and interpretable (Tabachnick & Fidell, 2001). In order to identify if multicollinearity was present among the predictor variables the types of DAP (Physical Environment, Social Context, and Instructional Context) were correlated with the BSSI-3. The Pearson correlation analysis was used. Results are presented in Table 6.

Table 7

Correlation Matrix of Types of DAP and Classroom Academic Performance

	Types of DAP			
	Physical	Instructional	Social	APEEC total
Instructional	.570			
Social	.616	.811**		
APEEC total	.722	.914**	.943	
BSSI-3	.132	.268	.293	.271

Note. APEEC Total = Assessment Practices of Early Elementary Classrooms; Physical = Physical Environment subscale of the APEEC; Social= Social Context subscale of the APEEC; Instructional = Instructional Context subscale of the APEEC; BSSI-3 = Classroom average score on the Basic Student Skills Inventory- Third Edition.

** $p < .001$

The very high correlation for the Social Context and Instructional Context subscales from the APEEC raised concerns about multicollinearity. Specifically, violating the assumption of multicollinearity because two independent variables are highly correlated. Tabachnick and Fidell (2001) recommend correlations greater than .90 suggest multicollinearity may be a concern. The issue of multicollinearity was further examined using a regression analysis. Each independent variable was inverted to a

dependant variable while the other independent variables remained constant (Tabachnick & Fidell, 2001). This technique was used for all three independent variables: Physical Environment, Instructional Context, and Social Context. There was a statistically significant relationship when Physical Environment and Instructional Context were the independent variables and Social Context was inverted as the dependant variable. The greatest significance was present when the Social Context subscale was inverted into a dependant variable, accounting for the highest variance $F(2, 67) = 75.39$, $p < .001$. When Instructional Context and Physical Environment were inverted as dependant variables the assumption was statistically significant, but not to the extent that social was associated.

Table 8

Regression Analysis Examination of Multicollinearity between Independent Variables

Inverted Dependant Variable	Independent Variables	R ²
Physical	Social and Instructional	.394***
Social	Physical and Instructional	.692***
Instructional	Social and Physical	.665***

Note. Physical = Physical Environment subscale of the APEEC; Social = Social Context subscale of the APEEC; Instructional = Instructional Context subscale of the APEEC.

*** $p < .001$

Multicollinearity can also be identified when low tolerance levels are present (1-SMC). When multicollinearity exists, the least reliable variable can be deleted. After the variable is deleted from the analysis tolerance levels should be sufficient. Further pre-analysis examined multicollinearity when each independent variable was removed from the analysis and tolerance levels were examined. When Instructional Context was removed from the analysis the tolerance levels were acceptable at .621, suggesting this is the most appropriate variable to remove from the analysis to address the multicollinearity concern.

Assumptions and Main Analysis

Research Question 1a

Does DAP in early elementary school (kindergarten through second grade) predict overall age expected academic performance from children who were enrolled in the ECI project? A linear regression was conducted to determine if developmentally appropriate practices (DAP) was a predictor of age expected academic performance, as measured by the average BSSI-3 standard score.

Prior to running the linear regression, tests of assumptions were examined. Outliers were examined using a stem-leaf plot. The stem-leaf plot supports that no significant outliers were present. Normality was examined by computing the skew and kurtosis of each variable. The results indicate that skew and kurtosis were not < -2 or > 2 (computed as the ratio of the statistic to its standard error), hence there is no violation. Second, the assumption of linearity was examined. Through examination of the residual plots the predictor variable, DAP and criterion the variable, academic performance were shown to have linear relationships. Third, the assumption of homoscedasticity was

examined. Review of the scatterplot (Figure 1) demonstrated normal distribution of variables, hence there is no violation.

The regression analysis indicated that DAP is a significant positive predictor of age expected academic performance, $F(1, 68) = 5.39$, $\beta = .27$, $p < .05$ (Table 9). For every one unit increase in APEEC total score there was a corresponding increase of 3.85 units in age expected academic performance.

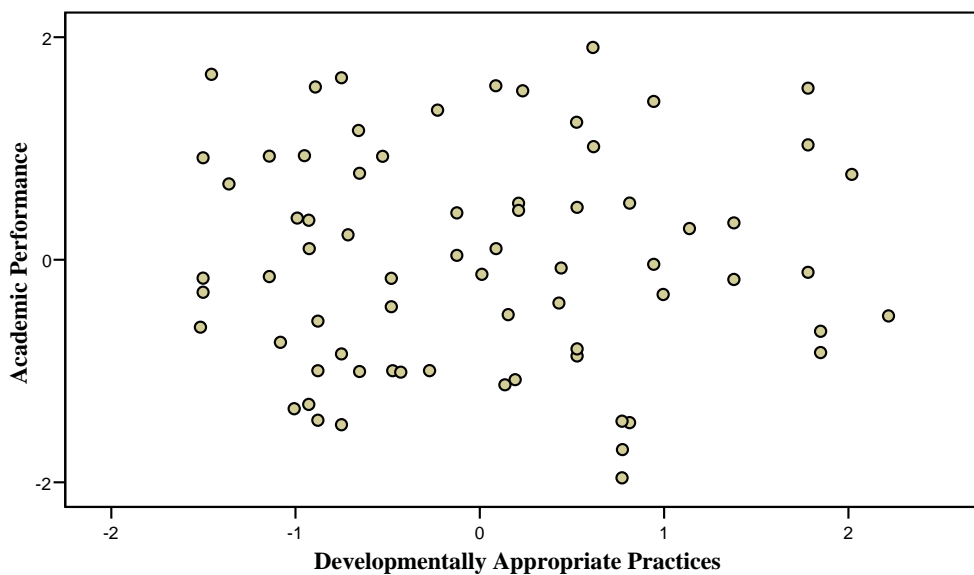


Figure 1. Predicted Residual Scatterplot for APEEC Regressed on BSSI-3 Total Standard Score.

Table 9

Regression of DAP to Academic Performance

Predictor	B	SE	β
-----------	---	----	---------

APEEC	3.85	1.66	.27*
-------	------	------	------

Note. APEEC = Assessment Practices of Early Elementary Classrooms. $R^2 = .073$

* $p < .05$

Research Question 1b

Does the type of DAP in early elementary school (i.e., Social Context, Physical Environment, and Instructional Context, (subscales of the APEEC) predict overall age expected academic performance from children who were enrolled in the ECI project?

Three separate linear regressions were computed using the average BSSI-3 total standard score for each classroom. The three predictor variables were APPEEC subscale scores for the classroom: Social Context, Physical Environment, and Instructional Context. The criterion variable is the BSSI-3 average standard score.

Prior to running the linear regression, several assumptions were examined. Outliers were examined using a stem-leaf plot. The stem-leaf plot supports that no significant outliers were present. Normality was examined by computing the skew and kurtosis of each variable. The results indicate that skew and kurtosis were not < -2 or > 2 (computed as the ratio of the statistic to its standard error), hence there is no violation. Thus, the skew and kurtosis were not extreme and normal for all dependent variables.

Second, the assumption of linearity was examined. Through examination of the plots the dependant variables were shown to have a linear relationship. Third, the assumption of homoscedasticity was examined. Review of the scatterplot demonstrated normal distribution of variables, hence there is no violation. In order to avoid a Type I error, the Bonferroni correction was used; p values/number of analysis ($.05/3 = .02$).

A linear regression was conducted to determine if Physical Context was a predictor of Academic Performance. The criterion variable is the BSSI-3 average standard score for each classroom. The Physical Environment subscale of the APPEC was the predictor variable. The results indicate that Physical Environment was not a significant predictor of age expected academic performance, $F(1, 68) = 1.21$, $\beta = .13$, ns. Results are reported in Table 10.

Table 10

Regression of Academic Performance on Physical Environment

Predictor	<u>B</u>	<u>SE</u>	<u>β</u>
Physical	2.24	2.04	.13

Note. Academic Performance = BSSI-3 total standard score; Physical = Physical Environment subscale from the Assessment Practices of Early Elementary Classrooms.
 $R^2 = .017$

Next, a linear regression was conducted to determine if Instructional Context was a predictor of age expected academic performance. The criterion variable is the BSSI-3

average standard score for each classroom. The Instructional Context subscale of the APPEC was the predictor variable. Instructional Context was a significant positive predictor of age expected academic performance, $F(1, 68) = 5.24, \beta = .27, p < .05$.

Results are reported in Table 11. For every one unit increase in Instructional Context there was a corresponding increase of 3.00 units in age expected academic performance.

Table 11

Regression of Academic Performance on Instructional Context

Predictor	<i>B</i>	<i>SE</i>	β
Instructional	3.00	1.31	.27*

Note. Academic Performance = BSSI-3 total standard score; Instructional = Instructional Context subscale from the Assessment Practices of Early Elementary Classrooms.

$R^2 = .072$

* $p < .05$

A linear regression was conducted to determine if Social Context was a predictor of age expected academic performance. The criterion variable is the BSSI-3 average standard score for each classroom. The Social Context subscale of the APPEC was the predictor variable. Social was a significant positive predictor of age expected academic performance, $F(1, 68) = 6.38, \beta = .29, p < .05$. Results are reported in Table 12. For every one unit increase in Social Context there was a corresponding increase of 3.60 units in age expected academic performance.

Table 12

Regression of Academic Performance on Social Context

Predictor	<i>B</i>	<i>SE</i>	β
Social	3.60	1.43	.29*

Note. Academic Performance = BSSI-3 total standard score; Social = Social Context subscale from the Assessment Practices of Early Elementary Classrooms.

$R^2 = .084$

$p < .05^*$

Lastly, a multiple regression was computed to examine the relationship between academic performance and the three types of DAP. Results of the pre-analysis indicated there was a high correlation between the Social Context and Instructional Context, indicating multicollinearity of these two subscales. Further pre-analysis was computed to determine which variable should be held constant during the analysis. The Instructional Context was determined to be the most appropriate variable to be held constant during the analysis, as further explained in the pre-analysis section. Results of the regression analysis indicated there was a significant positive predictor of Physical Environment and Social Context, $F(2, 67) = 66.611$, $p < .001$. Results are reported in Table 13. Social Context contributed significantly to the prediction of academic performance.

Table 13

Multiple Regression on Academic Performance on Physical and Social Context.

Predictor	<i>B</i>	<i>SE</i>	β
Physical	.173	.137	.144
Social	.813	.098	.740***

Note. Academic Performance = BSSI-3 total standard score; Physical = Physical Environment on the Assessment Practices of Early Elementary Classrooms; Social = Social Context on the Assessment Practices of Early Elementary Classrooms.

$R^2 = .062$

*** $p < .001$

Research question 2a

Does the level of DAP in early elementary classrooms relate to overall age expected academic performance? The independent variables are the categorized DAP levels computed from the APPEC according to the APPEC manual guidelines. The dependant variable is the standard score from the BSSI-3.

Prior to running the main analysis, the tests of assumption were examined. Outliers were examined using a stem-leaf plot. The stem-leaf plot supports that no significant outliers were present. The results indicate that skew and kurtosis were not < -2 or > 2 (computed as the ratio of the statistic to its standard error), hence there is no violation. Thus, the skew and kurtosis were not extreme and normal for all dependent

variables. Second, the assumption of linearity was examined. Through examination of the plots the dependant variables were shown to have linear relationships. Third, the assumption of homoscedasticity was examined. Review of the predicted-residual scatterplot demonstrated normal distribution of variables, hence there is no violation.

An Analysis of Variance (ANOVA) was conducted to examine if there was a difference between academic performance and levels of DAP. There was a statistically significant difference for levels of DAP and academic performance measured by the BSSI-3 $F(2, 64) = 4.830, p < .011$.

Table 14

Analysis of Variance of DAP and Academic Performance

BSSI-3	<i>df</i>	<i>MS</i>	<i>F</i>
Level	2	1150.988	4.83*
Error	64	238.289	
Corrected Total	66		

Note. DAP = Developmentally Appropriate Practices as measured by the APEEC;

BSSI-3 = Basic Student Skills Inventory- Third Edition.

* $p < .05$

Analysis of the main effects were followed up with a post hoc analysis using the Scheffé test. The Scheffé test was used to determine statistical significance between the levels of DAP. Table 15 presents the means, standard deviations, and post hoc analysis

using the Scheffé test for the three levels of DAP (Inadequate, Minimal, and Good).

Results revealed that there is a significant difference between inadequate and good levels of DAP ($p < .030$). There was no statistical difference between other levels of DAP.

Table 15

Scheffé Post Hoc Comparisons for the Level of DAP and Academic Performance

	Levels of DAP						<i>Post Hoc</i>
	Inadequate (1)		Minimal (2)		Good (3)		
Academic Performance	<u>MD</u>	<u>SE</u>	<u>MD</u>	<u>SE</u>	<u>MD</u>	<u>SE</u>	
BSSI-3	98.64	15.87	108.44	14.18	114.10	17.57	3 > 1*

Note. The number in parentheses in column heads refer to the numbers used for illustrating significant differences in the last column titled “Post Hoc.”

* $p < .05$

Research question 2b

Does the Social Context in the classroom influence age expected behaviors in the classroom? An Analysis of Variance (ANOVA) was used to examine if the different levels of Social Context in a classroom were related to classroom behavior. The independent variables are the categorized levels of the Social Context subscale composite score from the APPEC. The dependant variable is Classroom Behavior Standard Score from the BSSI-3. The results indicated that there is no statistically significant main effect for Social Context $F(1, 97) = .636, p < .861, ns$.

Research Question 2c

Does the Instructional Context in the classroom influence age expected behaviors in the classroom? An ANOVA design was utilized. The Instructional Context composite score on the APPEC within each classroom is the independent variable. The dependant variable is the BSSI-3 Classroom Behavior standard score. The results indicated that there is no statistically significant interaction main effect for Instructional Context $F(1, 97) = .483, p > .05, ns$.

Research question 3a

Do children who are enrolled in minimal to excellent DAP classrooms in Kindergarten, after transitioning from the ECI project, maintain age level academic achievement from the end of preschool to the end of kindergarten? A Multivariate Analysis of Covariance (MANCOVA) was used to examine if levels of DAP were related to maintaining academic achievement from preschool to kindergarten. The independent variables are the categorized levels of DAP from APEEC (inadequate, minimal, and good). It should be noted that no classrooms were rated at the excellent level; therefore this level of analysis was not included in the analysis. The dependant variables are mean standard scores from the BSSI-3 subscales Spoken Language, Reading, Writing and Mathematics from early elementary school. The covariate for this analysis was the BSSI-3 total standard score from preschool.

Prior to running the MANCOVA, the tests of assumption were examined. First the test of Normality was examined by computing the skew and kurtosis of each variable. The results indicate that the skew and kurtosis were not <-2 or >2 , for the Reading and Writing subscales on the BSSI-3, hence there were no violations on these two subscales.

The skew and kurtosis were normal for these two dependant variables. The Spoken Language scale had slightly high kurtosis at 4.92 and the Math scale had a slightly low kurtosis at -2.39 . However, the MANCOVA is considered robust to these mild violations of normality (Tabachnick & Fidell, 2001). Second, the assumptions of linearity were examined and Reading and Writing scales demonstrated a reasonably balanced distribution and linear relationship. However, the dependant variables Spoken Language and Math demonstrated to have a nonlinear relationship. However, the analysis is considered robust to these mild violations of linearity. Third, the assumption of homogeneity of covariance was examined through the Box M test and it is not significant, therefore there is equal variance across independent groups, and it is recommended to use the Wilks' Lamda and the main effects can be accurately interpreted. The Levene's Test of Equality was not significant on each dependant measure indicating there is equal variance across groups for the dependant measures. Results of the multiple MANCOVA are presented in Table 16.

Table 16

Multivariate and Univariate Analysis of Covariance on Level of DAP and Academic Performance

Variable	df	F	Univariate			
			Spoken Language	Reading	Writing	Math
Covariate	1, 15	3.54*	.075	8.711*	4.095	2.318
Level of DAP	4, 15	7.217**	.818	10.011*	1.50	.571

Note. Covariate = BSSI-3 total standard score from preschool; DAP = Developmentally Appropriate Practices as measured by the APEEC

* $p < .05$

Examination of the Wilks' criterion indicates significant difference interaction between levels of DAP and the dependant variables Wilks' $\Lambda = .257$, $F(4, 16) = 7.217$, $p < .005$. The covariate significantly influenced the dependant variables $F(4, 16) = 3.54$, $p < .05$. Analysis of covariance (ANCOVA) was conducted on each dependant variable as a follow up test to the MANCOVA. Examination of the univariate analysis indicates a statistically significant effect for DAP and the Reading subscale $F(1, 16) = 10.011$, $p < .007$. Table 17 shows the means, standard deviations, and effect sizes to examine the differences among the levels of DAP and academic subscales on the BSSI-3.

Table 17

Means and Standard Deviations on Level of DAP and Academic Performance

	Level of DAP				η^2
	Minimal		Good		
Academic Performance	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Spoken Language	115	17.48	105.83	22.23	.006
Reading	103	7.53	112.5	5.24	.401
Writing	102.5	4.86	105.8	5.85	.240
Math	103.5	5.80	105.83	4.92	.151

Note. DAP = Developmentally Appropriate Practices measured by the APEEC.

Research question 3b

Do children who are enrolled in minimal to excellent DAP Kindergarten classrooms, after transitioning from the ECI project maintain age level expected Daily Living Skills and Classroom Behavior from the end of preschool to the end of kindergarten? A MANCOVA was used. The independent variables are the categorized levels of DAP from APEEC (inadequate, minimal, and good). It should be noted that no classrooms were rated at the excellent level; therefore this level of analysis was not included in the analysis. The dependant variable is the Standard Score from the BSSI-3 subscales Classroom Behavior and Daily Living Skills. The covariate is the BSSI-3 standard score from preschool. Prior to running the MANCOVA, the tests of assumption were examined. Normality was examined by computing the skew and kurtosis were not

<-2 or >2, for the Classroom Behavior scale, hence there is no violation. Thus, the skew and kurtosis were not extreme and were normal for the Classroom Behavior Scale. However, the Daily Living Scale demonstrated to have slightly low kurtosis at -2.103. However, the MANCOVA is considered robust to these mild violations of normality (Tabachnick & Fidell, 2001). Second, the assumptions of linearity were examined and the dependant variables demonstrated to have a linear relationship, hence there is no violation. Third, the assumption of homogeneity of covariance was examined through the Box M test and it is not significant, therefore there is equal variance across independent groups, and it is recommended to use the Wilks' Lamda. Also the Levene's Test of Equality was not significant on each dependant measure indicating there is equal variance across groups for the dependant measures. Results of the MANCOVA are presented in Table 18.

Table 18

Multivariate and Univariate Analysis of Covariance on Level of DAP and Age Expected Behavior

	Univariate			
	<u>Multivariate</u>	Classroom Behavior	Daily Living Skills	
Source	<i>df</i>	<i>F</i>		
Covariate	1, 15	4.67	.210	4.204
Level of DAP	1, 15	2.85	.069	1.168

Note. DAP= Developmentally Appropriate Practices; Covariate =BSSI-3 from preschool.

Examination of the Wilks' criterion indicates no significant difference between level of DAP and the dependant variables. Table 19 shows the means, standard deviations, and effect sizes to examine the differences among the levels of DAP and Classroom Behavior and Daily Living Skills subscales on the on the BSSI-3.

Table 19

Mean Scores and Standard Deviations for Level of DAP and Classroom Behavior and Daily Living Skills

	Classroom Behavior		Daily Living Skills		η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Level of DAP					
Minimal	101.00	14.86	99.5	7.62	.005
Good	99.17	14.63	104.17	9.17	.082

Note. DAP = Developmentally Appropriate Practices.

CHAPTER V

DISCUSSION

In this section implications of the results found in chapter 4 are discussed. Significant findings are compared to interpretations presented in previous research. Finally, limitations and recommendations for future research are provided.

Research Findings

Research question 1a was supported as developmentally appropriate practices (DAP) in early elementary classrooms was found to have a statistically significant relationship to children's overall academic performance. Further analysis examined the relationship among the types of DAP (Physical Environment, Social Context, and Instructional Context) and academic performance. Pre-analysis indicated there was a high correlation between the Social Context and Instructional Context, indicating multicollinearity of these two subscales. Due to this multicollinear relationship Instructional Context was removed from the analysis. The Social Context of early elementary classrooms demonstrated to be a positive predictor of academic performance.

The level of DAP (Inadequate, Minimal, and Good) and children's academic performance was examined. Results provided support for this research question, as children in higher levels of DAP classrooms demonstrated higher levels of overall academic performance. Children in DAP classrooms rated as Good demonstrated a significant difference in overall academic performance in comparison to children in classrooms rated as Inadequate. Significant differences in overall academic performance

were not present between children in Inadequate DAP and Minimal DAP classrooms as well as Minimal DAP and Good DAP classrooms. Research questions 2b and 2c were not supported, as there was no evidence that the Social Context or Instructional Context of early elementary classrooms influenced children's behavior in the classroom.

Results indicate that children maintained or exceeded their academic functioning when transitioning to kindergarten when placed in Good DAP classrooms as opposed to Minimal DAP classrooms. Reading achievement was significantly higher in Good DAP classrooms than Minimal DAP classrooms, suggesting that higher levels of DAP can improve children's reading achievement.

Results Compared with Previous Findings

Researchers have begun to examine the efficacy of DAP and child outcomes in early elementary school (Huffman & Speer; Jones & Gullo, 1999; Van Horn & Ramey, 2003). However, the results of DAP on academic and psychosocial outcomes for children in early elementary school are mixed. The findings of the current study supported and improved upon previous research studies evaluating the influence of DAP on child outcomes in early elementary school.

The current study demonstrated a positive relationship between academic performance and DAP. These results were not consistent with two studies that examined DAP in early elementary school. Jones and Gullo (1999) indicated no difference between students (n=293) verbal and math performance in classrooms where teachers' classroom behavior was rated DAP or DIP. Children in classrooms rated Average DAP performed better on measures of math than children in DAP or DIP rated classrooms (Jones & Gullo, 1999). Further, Van Horn and Ramey (2003) found no consistent relationship

between the use of DAP and change on standardized achievement tests for children in kindergarten through third grade.

Huffman and Speer (2000) reported that kindergarten and first grade children in moderate DAP classrooms performed statistically better on tests of letter-word identification than children in low DAP classrooms. The results of the current study supported the influence of DAP on reading achievement, as kindergartners in Good rated DAP classrooms were reported to perform better in the area of reading achievement than their peers who were in Minimal rated DAP classrooms.

The current study is unique, as specific types of DAP (Physical, Instructional, and Social) were examined. The Social Context and Instructional Context demonstrated a positive relationship with children's academic performance. The Social Context subscale of the APPEC examines the teacher-child interaction as well as the use of child centered instruction rather than teacher led instruction. Findings examining DAP and psychosocial outcomes were not consistent with previous research. The literature has supported the use of DAP with positive psychosocial outcomes in children in early elementary school. Research examining teacher-child interaction has shown that teacher's relationships with children have been shown to influence children's social and emotional development (Arnett, 1989; Charlsworth et al., 2001). These findings were not consistent with the current study, as the Social Context of the classroom was did not influence child's classroom behavior. Findings of the current study did not demonstrate a positive relationship between the Social Context of the classroom and children's classroom behavior. The methodology of the current study was slightly different, as child behavior was reported by the classroom teacher rather than observed by a trained researcher.

Previous research has reported that there are few classrooms that fully demonstrate DAP (Dunn & Kontos, 1997, Oakes & Caruso, 1990). DAP was assessed using the APEEC (Hemmeter et al., 2001) which measures DAP in levels from (1= Inadequate; 3= Minimal; 5 = Good; 7 = Excellent). There were no classrooms observed in the current study that reached an overall rating of an Excellent level of DAP. Only 18% of the classrooms observed were rated Good, which is consistent with the Cost, Quality and Child Outcomes Study (1995) which reported that only 14% of childcare centers received overall ratings of good quality. This finding is significant, as it is consistent with previous research and supports the need for elementary classrooms to improve their practices.

Current DAP research examining child outcomes have used traditional, individual-based standardized methods of assessment to measure academic performance (Huffan & Speer, 2000; Jones & Gullo, 1999; Van Horn & Ramey 2003). Virtually no studies to date have used authentic assessment when measuring for effects of DAP in early childcare classrooms. The current study is unique, as academic performance was measured using the BSSI-3 (Hammill et al., 1998), an assessment measure where the classroom teacher rated the child's functioning within the classroom. The BSSI-3 provides standardized scores, based on the teacher report of the child's ability and their overall performance within the classroom setting.

Implications

Implications for Policy Makers

Policymakers want to know how well programs for young children work. Unfortunately, accountability for child success often consists of how well a child performs on high-stakes testing that can influence program funding, employment, and

student retention based on the child's performance on one test. Testing that has historically been administered to middle school and high school students are now being applied in the early elementary grades (Pianta & Cox, 2002). These mandated assessments align with national and state educational standards. Early childhood educators are placed in a difficult decision to teach based on developmentally appropriate practices or based on state standards. High-stakes testing can make this decision even more difficult, as early childhood teachers receive pressure from administrators to teach to prepare children to perform well on state assessment.

Researchers have demonstrated marked differences in classroom quality of children in low-income schools as compared to their more affluent peers. The current study demonstrated that the Social Context of the classrooms was the greatest predictor of children's achievement.

Implications for School Psychology Practice

The context and practice of school psychology has changed and evolved. As changes occur with the educational system, school psychologists need to be prepared to respond to and be a resource for administrators, teachers, and parents. School psychologist can play a lead role in helping teachers to implement more developmentally appropriate curriculum in the classroom. Specifically, helping schools develop challenging, but achievable curricula for children. Further, school psychology training programs need to prepare future school psychologist to go into the field to implement these strategies.

Implications for Research

The National Association for the Education of Young Children (NAEYC) position statement on DAP applies to children birth through eight years of age (Bredkamp & Copple, 1997). How these standards are implemented in the classroom looks very different in preschool and early elementary school. Further research and needs to be conducted on the implementation of DAP in early elementary school.

The current study is the first to examine the effects of DAP using authentic assessment child measures that are developmentally appropriate. Previous research studies assessing DAP and child outcomes have relied on traditional, standard-based assessment. Use of authentic assessment can provide greater information about the child. Further research is needed to examine the use of authentic based assessment for classroom practices, child outcomes, and overall school performance.

Limitations

Several limitations must be considered when interpreting the results of this study. The first limitation that must be taken into consideration is the assessment of DAP. The APEEC (Hemmeter et al., 2001) was selected at the time of data collection, as it was the only measure at that time developed to assess DAP in K-2rd grade. Some aspects of DAP, such as child assessment and parent involvement are difficult to measure because they take place infrequently. The manual states that it is possible to complete the APEEC in less than a day. However, the authors recommend observing as much of a full day of the classroom activities as possible. Observation for the current study met the recommendations of the manual, however, only a few classroom observations consisted of a full day. Completion of certain items on the APEEC was based on the teacher

response during a structured interview with a trained researcher. Previous research studies have demonstrated that teachers' beliefs or reported practices of DAP do not ensure the occurrence of DAP in the classroom.

The second limitation that should be considered is the method of assessing academic performance. Academic performance was measured by the classroom teacher completing the BSSI-3 (Hammill et al. 1998). This methodology is unique as previous studies have used standardized assessment to measure child outcomes. There are many advantages of using an authentic assessment approach as the teacher can report on how the child functions within the classroom setting. One potential limitation with this approach is the reliability possibility of biased ratings.

Recommendations for Future Research

The current study suggests practical implications about DAP in early elementary grades. In the future, addition research is needed to examine types and levels of DAP in early elementary classrooms. To date this is the only study that has examined the subtypes of DAP on the APEEC. Further research examining child outcomes and types of DAP would be useful.

All of the subjects in the current study attended the ECI project. Specific information regarding the length of time each child was enrolled in the program was not included in the analysis of the current study. Length of program participation is one variable in long-term outcomes (Ramey and Ramey, 1998). In the future, including the length of early childhood program participation in the analysis would be informative.

Finally, academic trajectories of school performance have been demonstrated to be developed by third grade. In order to fully explore the transition from children who

were enrolled in the ECI project into early elementary school further assessment of child outcomes and their classroom practices are needed. The current study only examined the transition from preschool to kindergarten. If children continue to maintain academic gains when placed in high DAP classrooms the issues of “fadeout” needs to be re-examined, academic declines may not be due to the child’s early childcare experiences, but rather their school age experiences.

References

- Abbott-Shim, M., & Sibley, A. (1992). *Assessment profile for early childhood programs: Research version*. Atlanta, GA: Quality Assist, Inc.
- Alexander, K., & Entwistle, D. R. (1998). Achievement in the first two years of school: Patterns and process. *Monographs of the Society for Research in Child Development, 53*, Serial No. 218.
- Alexander, K., Entwistle, D. R., & Thompson, M. S. (1987). School performance, status relations, and the structure of sentiment: Bringing the teacher back in. *American Sociological Review, 52*, 665-682.
- Arnett, J. (1989). "Caregivers in daycare centers: Does training matter?" *Journal of Applied Developmental Psychology, 10*, 541-552.
- Aylward, G. P. (1992). The relationship between environmental risk and developmental Outcomes. *Journal of Developmental and Behavioral Pediatrics, 13*, 222-229.
- Bagnato, S. J., Suen, H., Brickley, D., Smith-Jones, J., & Dettore, E. (2002). Child development impact of Pittsburgh's early childhood initiative (ECI) in high-risk communities: first phase authentic evaluation research. *Early Childhood Research Quarterly, 17*, 559-580.
- Baltimore City Public Schools. (1991). *Maryland school performance program report, 1991: School system and schools*. Baltimore City, Baltimore: Author.
- Barnett, W. S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children, 5(3)*, 25-50.

- Berrueta-Clement, J. R., Schweinhart, L. J., Barnett, W. S., Epstein, A. S., & Weikart, D. P. (1984). *Changed lives: The effects of the perry preschool program on youths through age 19*. Monographs of the High/Scope Education Research Foundation, No.8. Ypsilanti, MI: The High/Scope Press.
- Birch, S. H., & Ladd, G. W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*, 61-79.
- Bowman, B., & Donovan, S. (Eds.). (2002). *Eager to learn educating our preschoolers*. Washington D.C.: National Academic Press.
- Bredenkamp, S. (Ed). (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age eight*. Washington DC: National Association for the Education of Young Children.
- Breadkamp, S., & Copple, C. (Eds.). (1997). *Developmentally appropriate practices in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.
- Breadkamp, S., & Shepard, L. A. (1989). How best to protect children from inappropriate school expectations, practices, and policies, *Young Children, 44*, 14-24.
- Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children and youth. *The Future of Children, 7*(2), 55-71.
- Brooks-Gunn, J., Klebanov, P. Liaw, F., & Duncan, G. (1995). *Toward an understanding of the effects of poverty upon children*. In. H.E. Fitzgerald, B. M., Lester, & B. Luckerman (Eds.), *Children of Poverty* (pp. 3-37). New York: Garland.

- Bryant, D. M., Clifford, R. M., & Peisner, E. S. (1991). Best practices for beginners: Developmental appropriateness in kindergarten. *American Educational Research Journal, 28*, 783-803.
- Buchanan, T. K., Burts, D. C., Binder, J., White, F., & Charlesworth, R. (1998). Predictors of the developmentally appropriateness of the beliefs and practices of first, second, and third grade teachers. *Early Childhood Research Quarterly, 13*, 459-483.
- Burchinal, M. R., Campbell, F. A., Bryant, D. M., Wasik, B. H., & Ramey, C. T. (1997). Early intervention and mediating processes in cognitive performance of children of low-income African-American families. *Child Development, 68*, 935-954.
- Burchinal, M. R., & Nelson, L. (2000). Family selection and child care experiences: Implications for studies of child outcomes. *Early Childhood Research Quarterly, 15*, 385-411.
- Burchinal, M. R., Roberts, J., Riggins, R., Zeisel, S., Neebe, E., & Bryant, D. (2000). Relating quality of center-based care to early cognitive and language development longitudinally. *Child Development, 71*, 339-357.
- Burchinal, M., Lee, M., & Ramey, C. T. (1989). Type of day care and preschool intellectual development in disadvantaged children. *Child Development, 60*, 128-137.
- Burts, D. C., Hart, C. H., Charlesworth, R., DeWolf, D. M., Ray, J., Manuel, K. et al. (1993). Developmental appropriateness of kindergarten programs and academic outcomes in first grade. *Journal of Research in Childhood Education, 8*, 23-31.

- Burts, D. C., Hart, C. H., Charlesworth, R., Fleede, P. O., Mosley, J., & Thomasson, R. H. (1992). Observed activities and stress behaviors of children in developmentally appropriate and inappropriate kindergarten classrooms. *Early Childhood Research Quarterly, 7*, 297-318.
- Burts, D. C., Hart, C. H., Charlesworth, R., & Kirk, L. (1990). A comparison of frequencies of stress behaviors observed in kindergarten children with classrooms with developmentally appropriate versus developmentally appropriate instructional practices. *Early Childhood Research Quarterly, 5*, 497-423.
- Campbell, F. A., & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow up study of children from low-income families. *Child Development, 65*, 684-698.
- Campbell, F. A., & Ramey, C. T. (1995). Cognitive and school outcomes for high-risk African American students at middle adolescence: Positive effects of early intervention. *American Educational Research Journal, 32*, 743-772.
- Carnegie Task Force on Meeting the Needs of Young Children. (1994). *Starting points: Meeting the needs of our youngest children*. New York: Carnegie Corporation.
- Charlerson, R., Hart, C.H., Burts, D. C., & Hernandez, S. (1991). Kindergarten teachers' beliefs and practices. *Early Child Development and Care, 70*, 17-35.
- Charlerson, R., Hart, C. H., Burts, D. C., Thomasson, R. H., Mosley, J., & Fleege, P. (1993). Measuring the developmental appropriateness of kindergarten teacher's beliefs and practices. *Early Childhood Research Quarterly, 8*, 255-276.

- Cicirelli, V. (1969). *The impact of Head Start: An evaluation of Head Start on children's cognitive and affective development*. Westinghouse Learning Corporation for Federal Scientific and Technical Information, U.S. Institute for Applied Technology.
- Clifford, D., Peisner-Feinberg, E., Culking, M., Howes, C., & Kagan, S. (1998). *Quality care does mean better outcomes*. Retrieved February 23, 2003, from <http://www.fpg.unc.edu/~ncedl/Pages/spotl2.htm>.
- Consortium of Longitudinal Studies. (1983). *As the twig is bent: Lasting effects of preschool programs*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Cost, Quality, and Child Outcomes Team. (1995). *Cost, quality, and child outcomes in child care centers*, Public Report, Dencer: University of Colorado at Denver, Department of Economics.
- DeVries, R., Reese-Learned, H., & Morgan, P. (1991). Sociomoral atmosphere in direct-instruction, eclectic, and constructivist kindergartners: A study of children enacted personal understanding. *Early Childhood Research Quarterly*, 6, 473-518.
- Dunn, L. Beach, S. A., & Kontos, S. (1994). Quality of the literacy environment in day care and children's development. *Journal of Research in Childhood Education*, 9, 24-34.
- Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test-Revised*. Circle Pines, MN: American Guidance Service.
- Dunn, L. M., & Kontos, S. (1997). Research in Review: What have we learned about developmentally appropriate practices? *Young Children*, 52(5), 4-13.

- Dunn, L. M., & Markwardt, F. (1970). Peabody Individual Achievement Test. (Vol 1.). Circle Pines, MN: American Guidance Services.
- Elkind, D. (1986). In defense of early childhood education. *Principal*, 66, 6-9.
- Entwisle, D. R., (1995). The role of schools in sustaining early childhood early childhood program benefits. *The Future of Children*, 5, 133-144.
- Entwisle, D. R., & Alexander, K. L. (1988). Factors affecting achievement test scores and marks received by black and white first graders. *The Elementary School Journal*, 88, 449-471.
- Entwisle, D. R., Alexander, K. L., Olson, L. S. (1997). *Children, schools, and inequality*. Boulder, CO: Westview Press.
- Frank Porter Graham Child Development Center. (2001). Early learning, later school success: The Abecedarian Study. Retrieved April 4, 2003, from http://www.fpg.unc.edu/abc/embargoed/executive_summary.htm.
- Frede, E. The role of program quality in producing early childhood program benefits. *The Future of Children*, 5, 115- 132.
- Frede, E., Barnett, W. S., (1992). Developmentally appropriate public school preschool: A study of implementation of the High/Scope curriculum and its effects of disadvantaged children's skills at first grade. *Early Childhood Research Quarterly*, 7, 483-499.
- Garber, H. L. (1988). The Milwaukee Project. Washington DC: American Association for Mental Retardation.

- Gill, B. P., Dembrosky, J. W., & Caulkins, J. P. (2002). "A noble bet" in early child care and education: Lessons from one community experience. Santa Monica: RAND Distribution Services.
- Gilliam, W., Ripple, C., Zigler, E., & Leiter, V. (2000). Evaluating child and family demonstration initiatives: Lessons from the comprehensive child development program. *Early Childhood Research Quarterly, 41*, 41-59.
- Goffin, S., & Wilson, C. (2001). *Curriculum models and early childhood education appraising the relationship*. New Jersey: Merrill Prentice Hall.
- Goodson, B., Layzer, J., St. Pierre, R., Bernstein, L., & Lopez, M. (2000). Effectiveness of a comprehensive, five-year family support program for low-income children and their families: Findings from the comprehensive child development program. *Early Childhood Research Quarterly, 15*, 5-39.
- Gorey, K. (2001). Early childhood education: A meta-analytic affirmation of the short- and long-term benefits of educational opportunity. *School Psychology Quarterly, 16*, 9-30.
- Gottlieb, M. (1997). *A Developmentally Appropriate Practice Template administrative and technical manual*. Des Plaines, IL: Illinois Resource Center/OER Associates.
- Hammill, D. D., Leigh, J. E., Pearson, N. A., & Maddox, T. (1998). *Basic schools skills inventory-3: A readiness measure for teachers*. Austin, TX: PRO-ED.
- Harms, T., Clifford, R. M., & Cryer, D. (1998). *Early childhood environmental rating scale- Revised*. (Rev. edn). New York, NY: Teachers College Press.

- Hart, C. H., Burts, D.C., & Charlsworth, R. (1997). Integrated developmentally appropriate curriculum: From theory and research to practice. In C. H. Hart, D. C. Burts, & R. Charlsworth (Eds.), *Integrated curriculum and developmentally appropriate practice: Birth to age 8*. New York State: State University of New York Press.
- Hart, C. H. Burts, D. C., Durland, M. A., Charlesworth, R., DeWolf, M., & Fleege, P. O. (1998). Stress behaviors and activity type participation of preschoolers in more and less developmentally appropriate classrooms: ses and sex differences. *Journal of Research in Childhood Education, 12*, 176-196.
- Harter, S., & Pike, R. (1984). The pictorial perceived competence scale for young children. *Child Development, 55*, 1969-1982.
- Heaviside S., & Farris, E. (1993). *Public school kindergarten teacher's views on children's' readiness for school*. Washington, DC: U.S. Department of Education, National Center for Educational Statistics.
- Hemmeter, M. L., Maxwell, K. L., Ault, M. J., & Schuster, J. W. (2001). *Assessment practices in early elementary classrooms*. New York: Teachers College Press.
- Hirsh-Pasek, K., Hyson, M. C., & Rescorla, L. (1990). Academic environments in preschool: Do they pressure or challenge young children. *Early Education and Development, 1*, 401-423.
- Horacek, H. J., Ramey, C. T., Campbell, F. A., Hoffman, K. P., & Fletcher, R. H. (1987). Predicting school failure and assessing early intervention with high-risk children. *Journal of the American Academy of Child and Adolescent Psychiatry, 26*, 758-763.

- Holmes, J., & Morrison, N. (1994). Determining continuity in the primary grades with regard to developmentally appropriate teaching practices. (ERIC Document Reproduction Service No. ED 383 369).
- Howes, C., Phillipsen, L. C., & Peisner-Feinberg, E. (2000). The consistency of perceived teacher-child relationships between preschool and kindergarten. *Journal of School Psychology, 38*, 113-132.
- Hresko, W., Miguel, S., Sherbenou, R., & Burton, S. (1994). *Developmental Observation Checklist System (DOCS)*. Austin, TX: PRO-ED.
- Huffman, L., & Speer, P. (2000). Academic performance among at-risk children: The role of developmentally appropriate practices. *Early Childhood Research Quarterly, 15*, 167-184.
- Huston, A. C. (2002). Reforms and child development. *The Future of Children, 12*, 65-69.
- Hyson, M. C., Hirsh-Pasek, K., & Rescorla, L. (1990). The Classroom Practices Inventory: An observation instrument based on NAEYC's guidelines for developmentally appropriate practices for 4 and 5 year old children. *Early Childhood Research Quarterly, 5*, 475-494.
- Jambunathan, S., Burts, D. C., & Pierce, S. H. (1999). Developmentally appropriate practices as predictors of self-competence among preschoolers. *Journal of Research in Childhood Education, 13*, 167-174.
- Jang, Y., & Mangione, P. L. (1994). *Transition program practices: Improving linkages between early childhood education and early elementary school*. (ERIC Document Reproduction Service NO. ED. 380 200).

- Johnson, J. E., & Johnson, K. M. (1992). Clarifying the developmental perspective in response to Carta, Schwarts, Artwater, and McConnell. *Topics in Early Childhood Special Education, 12*, 439-457.
- Jones, I., & Gullo, D. (1999). Differential social and academic effects of developmentally appropriate practices and beliefs. *Journal of Research in Childhood Education, 14*, 26-35.
- Karoly, L. A., Greenwood, P.W., Everingham, S., Hoube, J., Kilburn, M.R., Rydell, C. P. et al. (1998). *Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions*. Santa Monica: RAND Distribution services.
- Landesman, S., & Ramey, C. T. (1989). Developmental psychology and mental retardation: Integrating scientific principles with treatment practices. *American Psychologist, 44*, 409-415.
- Lazar, I., Darlington, R., Murray, & Lasing, R. (1982). Lasting effects of early education: A report from the Consortium for Longitudinal Studies. *Monographs for the society for Research in Child Development, 47*(2-3, Serial no. 195).
- Lee, V., & Burkam, D. (2002). *Inequality at the starting gate social background differences in achievement as children begin school*. Washington D.C. : Economic Policy Institute.
- Lee, V., & Loeb, S. (1995). Where do head start attendees end up? One reason why preschool effects fade out. *Education Evaluation and Policy Analysis, 17*, 62-82.
- Marcon, R. (1992). Differential effects of three preschool models on inner city 4 year-olds. *Early Childhood Research Quarterly, 7*, 517-530.

- Marcon, R. (1993). Socioemotional versus academic emphasis: Impact on kindergarteners' development and achievement. *Early Child Development and Care, 96*, 81-91.
- Marcon, R. (1999). Differential impact of preschool models on development and early learning of inner-city children: A three-cohort study. *Developmental Psychology, 35*, 358-375.
- Marcon, R. (2002). Moving up the Grades: Relationship between preschool model and later school success. *Early Childhood Research and Practice, 4*, 81-91.
- Maxwell, K. L., McWilliam, R. A., Hemmeter, M. L., Ault, M. J., & Schuster, J. W. (2001). Predictors of developmentally appropriate classroom practices through third grade. *Early Childhood Research Quarterly, 16*, 431-452.
- Meisels, S. J. (1998). Assessing readiness. *National Center for Early Development and Learning-Spotlight, 3*, 1-36.
- McCall, R. B., & Groark, C. J. (2000). The future of child development research and public policy. *Child Development, 71*, 187-204.
- McKey, R. H., Condelli, L., Ganson, H., Barrett, B. J., McConkey, C., & Plantz, M. C. (1985). *The impact of head start on children, families, and communities*. Final report of the head start evaluation, synthesis, and utilization project. Washington DC: U.S. Government Printing Office.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist, 53*, 185-204.

- National Association for the Education of Young Children (NAEYC). (1988).
 NAEYC position statement on standardized testing of young children 3 through 8 years of age. *Young Children, 43*, 42-47.
- National Association for the Education of Young Children (NAEYC). (1990). NAEYC position statement on school readiness. *Young Children, 46*, 21-23.
- National Center for Educational Statistics (NCES). (2000, January). *America's kindergartners*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- National Center for Educational Statistics (NCES). (1994). *The Condition of Education*. NCES 94-104. Washington, DC: U.S. Department of Education. Office of Educational Research and Improvement.
- National Commission of Excellence in Education. (1983). *A nation at risk*. Washington, DC: U.S. Department of Education.
- National Head Start Association. (1990). *Head Start: The nation's pride, a nation's challenge*. Alexandria, VA: National Head Start Association.
- National Research Council (2001). *Eager to Learn: Educating our preschoolers*. Committee on Early Childhood Pedagogy. Bowman, B. Y., Donovan, M. S., & Burns, M. S. (Eds.) Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
- Natriello, G., McDill, E., & Pallas, A. (1990). *Schooling disadvantaged children: racing against catastrophe*. New York: Teachers College Press.
- Neisworth, J. T., & Bagnato, S. J. (2004). The mismeasure of young children: The authentic assessment alternative. *Infants and Young Children, 17*, 198-212.

- NICHD Early Child Care Research Network. (1999). Child outcomes when child care classes meet recommended standards for quality. *American Journal of Public Health, 89*, 1072-1077.
- NICHD Early Child Care Research Network. (2002). Early care and children 's development prior to school entry: Results from the NICHD study of early child care. *American Educational Research Journal, 39*, 133-164.
- NICHD. Early Child Care Research Network. (2002). Structure>Process>Outcomes: Direct and indirect effects on caregiving quality on young children's development. *Psychological Science, 13*, 199-206.
- Oakes, P. B., & D. A., Caruso. (1990). Kindergarten teachers' use of developmentally appropriate practices and attitudes about authority. *Early Education and Development, 1*, 445-457.
- Peisner-Feinberg, E.S., Burchil, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, et al. (2000). *The children of cost, quality, and outcomes study go to school: Technical report*. University of North Carolina at Chapel Hill, Frank Porter Graham Child Development Center.
- Peisner-Feinberg, E.S., Burchinal, M. R., Clifford, R. M., Culkin, M., Howes, C., Kagen, S. L. et al. (2001). The relation of preschool child care quality to children's cognitive and social development trajectories through second grade. *Child Development, 72*, 1534-1553.
- Phillips, D., McCartney, K., & Scarr, S. (1987). Child care quality and children's social development. *Developmental Psychology, 23*, 537-543.

- Phillips, D., Voran, M., Kisker, E., Howes, C., & Whitebrook, M. (1994). Childcare for children in poverty: Opportunity or inequality? *Child Development, 65*, 472-492.
- Pianta, R. C., & Cox, M. J. (Eds.). (2002). *The transition to kindergarten*. Baltimore: Brookes Publishing Company.
- Pianta, R. C., Steinberg, M., & Rollins, K. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology, 7*, 295-312.
- Ramey, C.T., & Campbell, F.A. (1992). *Poverty, early childhood education, and academic competence: The Abecedarian experiment*. In A. Huston (Ed.), *Children in poverty* (pp. 190-221). New York, NY: Cambridge University Press.
- Ramey, C. T., & Ramey, S. L. (1991). The transition to school. *Phi Delta Kappan, 76*, 194-199.
- Ramey, C. T., & Ramey, S. L. (1992). Early education and intervention with disadvantaged children- to what effect? *Applied and Preventative Psychology, 1*, 131-140.
- Ramey, C. T., & Ramey, S. L. (1992). *The National/Head Start/Public school early childhood transition study: An overview*. Washington, DC: Administration on Children, Youth, and Families.
- Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist, 53*, 109-120.

- Raver, C., & Knitzer, J. (2002). Ready to enter what research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year old children. Retrieved December 15, 2002, from <http://www.nccp.org/Pro/EmoPP3.html>
- Reynolds, A. J. (1989). A structural model of first grade outcomes for an urban low socioeconomic status, minority population. *Journal of Educational Psychology*, *81*, 594-603.
- Reynolds, A. J. (1991). Early schooling of children at risk. *American Educational Research Journal*, *28*, 392-422.
- Reynolds, A. J. (1992a). Comparing measures of parental involvement and their effects of academic achievement. *Early Childhood Research Quarterly*, *7*, 441-462.
- Reynolds, A. J. (1992b). Mediated effects of preschool intervention. *Early Education and Development*, *3*, 139-164.
- Reynolds, A. J. (1994). Effects of a preschool plus follow-on intervention for children at-risk, *Developmental Psychology*, *30*, 787-804.
- Reynolds, A. J. (1995). One year of preschool intervention or two: Does it matter? *Early Childhood Research Quarterly*, *10*, 1-31.
- Reynolds, A. J., & Bezruczko, N. (1993). School adjustment of children at-risk through fourth grade. *Merril-Palmer Quarterly*, *39*, 457-480.
- Reynolds, A. J. (2000). Success in early intervention: *The Chicago Child-Parent Centers*. Lincoln, NE: University of Nebraska Press.

- Reynolds, A. J., Mavrogenes, N. A., & Bezruczko, N. (1996). Cognitive and family-support mediators of preschool effectiveness: A confirmatory analysis. *Child Development, 67*, 1119-1140.
- Reynolds, A. J., & Temple, J. A. (1998). Extended early childhood intervention and school achievement: Age 13 findings from the Chicago Longitudinal Study. *Child Development, 69*, 231-246.
- Reynolds, A. J., Temple, J. A., Robertson, D. L., & Mann, E. A. (2001). Long term Effects of an early childhood intervention and educational achievement and juvenile arrest: A 15-year follow-up of low income children in public schools. *Journal of American Medical Association, 285*, 2339-2346.
- Royce, J. M., Darlington, R. B., & Murraray, H. W. (1983). Pooled analysis: Findings across studies In the Consortium for Longitudinal Studies (Eds.), *As the twig is bent: Lasting effects of preschool programs* (pp. 411-460). Hillsdale, NJ: Erlbaum.
- Sameroff, A. J., Seifer, R., Baldwin, A., & Baldwin, C. (1993). Stability of intelligence from preschool to adolescence: The influence of social and family risk factors. *Child Development, 64*, 80-97.
- Schweinhart, L. J., Barns, H.V., & Weikart, D .P. (1993). Significant benefits: The high/scope perry preschool study through age 27. *Monographs of the High Scope Educational Research Foundation, 10*, Ypsilanti, MI: High/Scope Press.

- Schweinhart, L. J., Montier, J., Xiang, Z, Barnett, W. S., Belfield, C.R., & Nores, M. (2005). Lasting effects: The High/Scope Perry Preschool study through age 40. Ypsilanti, MI: High Scope Press.
- Schweinhart, L. J., & Weikart, D. P. (1997). The High/Scope preschool curriculum comparison study through age 23. *Early Childhood Research Quarterly*, 12, 117-143.
- Schweinhart, L. J., & Weikart, D. P. (1980). Young children grow up: The effects of the Perry Preschool Program on youth through age 15. *Monographs of the High Scope Educational Research Foundation* (No. 7).
- Schweinhart, L. J., Weikart, D. P., & Lerner, B. (1986). Consequences of three preschool curriculum models through age 15. *Early Childhood Research Quarterly*, 1, 15-45.
- Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington: D.C.: National Academy of Sciences, Committee on Integrating the Science of Early Childhood Development, National Research Council and Institute of Medicine, National Academy of Press.
- Sparrow, S. S., Balla, D. A., & Cicchetti, D. V. (1985). *Vineland Adaptive Behavior Scales: Classroom Edition manual*. Circle Pines, MN: American Guidance Services.
- Stipek, D. J, Feiler, R., Daniels, D., & Milburn, S. (1995). Effects of different instructional approaches of young children's achievement and motivation. *Child Development*, 66, 209- 223.

Stipek, D., Feiler, R., Byler, P., Ryan, R., & Milburn, S. (1998). Good beginnings:

What difference does the program make in preparing young children for school?

Journal of Applied Developmental Psychology, 19, 41-66.

Stipek, D. J., & Ryan, R. R. (1997). Economically disadvantaged preschoolers: Ready to learn but further to go. *Developmental Psychology, 33*, 711-723.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics: Fourth Edition*. Boston: Allyn and Bacon.

The Administration for Children and Families. (2000). *Head Start children's entry into public school: A report on the National Head Start/ Public School Early Childhood Demonstration Study*. Washington D.C.: U.S. Department of Health and Human Services.

Van Horn, M. L., Karlin, E.O., Ramey, S., Aldridge, J., & Snyder, S. (2005). Effects of developmentally appropriate practices on children's development: A review of research and discussion of methodological and analytic issues. *The Elementary School Journal, 105*, 325-352.

Van Horn, M. L., & Ramey, S. L. (2004). A new measure for assessing developmentally appropriate practices: A developmentally appropriate practices template. *Early Childhood Research Quarterly, 19*, 569-587.

Van Horn, M. L., & Ramey, S. L. (2003). The effects of developmentally appropriate practices on academic outcomes among former Head Start students and classmates from first to third grade. *American Educational Research Journal, 40*, 961-990.

- Vandell, D. L., Henderson, L., & Wilson, K. S. (1988). A follow-up study of children in excellent, moderate, and poor quality care. *Child Development, 59*, 1286-1292.
- Vandell, D. L., & Wolfe, B. *Childcare quality: Does it matter and does it need to be improved?* Madison, WI: Institute for Research and Poverty.
- Wasik, B. H., Ramey, C. T., Bryant, D. M., & Sparling, J. J. (1990). A longitudinal study of two early intervention strategies: Project Care. *Child Development, 61*, 1682-1696.
- Werner, E. E., & Smith, A. (2000). Protective factors resilience. In S. Meisels & J. Shonkoff (Eds.). *Handbook of early childhood intervention*. New York, NY: Cambridge University Press.
- Wiggins G. B. (1993). *Assessing student performance*. San Francisco: Jossey-Bass Publishers.
- White, K. R. (1985). Efficacy of early intervention. *Journal of Special Education, 19*, 401-416.
- Whitebook, M., Howes, C., & Phillips, D. (1990). *Who cares? Child care teachers and the quality of care in America*. Final Report of the National Child Care Staffing Study. Oakland CA: Child Care Employee Project.
- Wishard, A. G., Shivers, E. M., Howes, C., & Ritchie, S. (2003). Child care program and teacher practices: associations with quality and children's experiences. *Early Childhood Research Quarterly, 18*, 65-103.
- Woodcock, R., & Johnson, M. (1990). *Woodcock Johnson Psycho-Educational Battery-Revised*. Allen, TX: DLM Teaching Resources.

- Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *The Future of Children, 5*, 51-75.
- Yoshikawa, H., & Knitzer, J. (1997). *Lessons from the field: Head Start mental health strategies to meet changing needs*. New York, NY: National Center for Children in Poverty, Columbia University Mailman School of Public Health and the American Orthopsychiatric Association.
- Yoshikawa, H., Rosman, E.A., & Hsueh, J. (2002). Resolving parasocial criteria for the expansion and replication of early childhood care and education programs. *Early Childhood Research Quarterly, 17*, 3-27.
- Zill, N., & West, J. (2001). *Entering kindergarten: Findings from the Condition of Education, 2000*. (Publication No. NCES2001-035). Washington, DC: US Department of Education.

APPENDIX

Institutional Review Board Acceptance Letter



DUQUESNE UNIVERSITY

INSTITUTIONAL REVIEW BOARD

424 RANGOS BUILDING ♦ PITTSBURGH, PA 15282-0202

Dr. Paul Richer
Chair, Institutional Review Board
Phone (412) 396-6326 Fax (412) 396-5176
e-mail: richer@duq.edu

April 27, 2006

Ms. Amy Jo Crans-Stafford
7 Shady Grove
East Amherst NY 14051

Re: "Sustaining child outcomes from the early childhood initiative project: evaluation of school age developmentally appropriate practices"
(Protocol # 06/48)

Dear Ms. Crans-Stafford:

Thank you for submitting your research proposal for IRB review.

Based on the review of Dr. Carol Parke, IRB Representative, and my own review, your study is approved as Exempt based on 45-Code of Federal Regulations-46.101.b.4, regarding data without identifiers extracted from already existing records.

This exempt approval pertains strictly to the research described in the protocol. If you intend to make a change in the research, you must re-submit an amended proposal before proceeding.

In correspondence with our office, please refer to the protocol number shown after your title, above.

Once your study is complete, please provide our office with a short summary (one page) of your results for our records.

Thank you for contributing to Duquesne's research endeavors.

Sincerely yours,

Paul Richer, Ph.D.
IRB Chair

C: Dr. Jeff Miller
Dr. Carol Parke
IRB Records