Student Outcomes in a Blended Preschool Program

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Abstract

This case study examined the effect of quality preschool programming on child outcomes in a blended inclusive preschool program implemented in an urban school system in the piedmont of North Carolina. The blended inclusive preschool program was a newly initiated program in this district and had been in place for only 1 school year. The purpose of this study was to examine the growth of students enrolled in the program over a period of 6 months using the Learning Accomplishment Profile-Third Edition. Quality of programming was determined using the Early Childhood Environmental Rating Scale-Revised. Results of child outcomes and quality scores were analyzed using regression analyses. A case study with mixed methods was used for this study. Multiple child scores, quality programming scores, interviews and observations were used to collect data. An analysis of the data revealed that there was statistically significant growth within the means on the Learning Accomplishment Profile-Third Edition between three administrations. Each student showed growth in all areas examined. Regression analysis was used to determine the relationship between quality scores using the Early Childhood Environmental Ratings Scales-Revised and each sub-score of the Learning Accomplishment Profile-Third Edition. These analyses showed no statistical relationship between classroom quality and child outcomes.

Student Outcomes in a Blended Preschool Program

Attention to young children has increased and has, in turn, ushered in a new era for early childhood education (National Early Childhood Accountability Task Force, 2007). Parents are more concerned than ever about their children's learning, development and readiness for school. Early childhood teachers are taking on challenges of serving all children equitably and well. Policymakers are looking carefully at the outcomes reported for children participating in publicly funded early education programs. With a growing sense of accountability, teachers and policymakers want more information as they make decisions on how to foster children's early learning and development.

While early childhood has been an exciting and dynamic field, only in recent years has it begun to receive the attention that it deserves (National Early Childhood Accountability Task Force, 2007). The amount of knowledge describing how young children learn has grown rapidly, along with an understanding of the benefits of high-quality early childhood programs. With this increased attention, policymakers, teachers and the public are expected to know and to do more than ever before (Vandell, 2004).

North Carolina has a history of providing quality early education and intervention for young children. Programs such as Smart Start and More at Four evidence this and numerous other

child-centered initiatives. Public schools in North Carolina provided early education to more than 40,000 preschool children in the 2005-2006 school year (North Carolina Office of School Readiness [OSR], 2006). The Preschool Exceptional Children's Program has been mandated in all public schools since 1987. For the purposes of this study, the More at Four and Preschool Exceptional Children's Program were examined.

This study was part of the yearly evaluation of the preschool program by the local school system of this study and as required by state guidelines. This researcher was asked by the local district to conduct this study with the intent that the data and information gathered would lead to further longitudinal studies by the school system on the effects of preschool programming on future student success.

Research Questions and Purpose

The purpose of this study was to determine the impact of quality preschool programming on student growth and development in an urban school system located in the piedmont of North Carolina. The primary research questions were:

1. What differences exist on the results of the Learning Accomplishment Profile-Third Edition (LAP-3) for blended inclusive preschool students over a period of 6 months?
2. What is the relationship between quality Early Childhood Environmental Ratings Scales-Revised (ECERS-R) and outcomes on the Learning Accomplishment Profile-Third Edition for preschool students in the blended inclusive preschool program?

Case Study

Case studies are used when a researcher explores in depth a program, an event, an activity, a process, or one or more individuals (Creswell, 2003). Case studies are detailed investigations of individuals, groups, institutions or other social units. The researcher conducting a case study attempts to analyze the variables relevant to the subject under study (Polit & Hungler, 1983). The principle difference between case studies and other research studies is that the focus of attention is the individual case and not the whole population of cases. Most studies search for what is common and pervasive. However, in the case study, the focus may not be on generalization but on understanding the particulars of that case in its complexity. A case study focuses on a bounded system, usually under natural conditions, so that the system can be understood in its own habitat (Stake, 1988).

This study examined the phenomenon of the blended inclusive preschool program in the local school district in North Carolina. A case study is useful when the purpose of the study is to describe something in depth (Fitzpatrick, Sanders, & Worthern, 2004). The focus of case studies is on the case itself, to provide in-depth information and the situation at hand and not to generalize to a larger population. Examining the local preschool program will only be used for informational purposes requested from the local county and will not be used to generalize to a larger population. In this case study, the researcher explained how the blended preschool program achieved outcomes with students and the effects of quality on those outcomes.

Review of Literature

Early Childhood Education

As states have concentrated on improving the quality of early care and education, they have begun to systematically coordinate and restructure the system of providing and supporting early care and education. There has been increased collaboration that has resulted in development of early childhood systems that function across programs and agencies. Key stakeholders have included agencies that address educational services, child-care subsidies, child-care licensing, special education, health and social services, nutritional services, parent education and participation, program evaluation, and staff development. Leadership has come from various sources, including governors, legislators, and key players in state agencies.

State-funded voluntary prekindergarten programs have grown steadily over the past decade and now enroll more than one million children (Ackerman, Barnett, Brown, Hawkinson, & McGonigle, 2009). While the overall trend has been one of increasing participation in publicly-funded preschool education, access in most states is limited to select groups of disadvantaged or otherwise at-risk 4-year-olds (Ackerman et al.).

Since the enactment of the Elementary and Secondary Education Act (ESEA) in 1965, preschool services to eligible children have been an allowable use of Title I funds (United States Department of Education, 2004). Title I preschool is a program of high-quality educational experiences designed to enable young children to meet challenging state standards. Although Title I allows its preschool programs to serve children from birth up to 5-years old, most Title I preschools serve 4-year-olds only (US Dept. of Education). These programs usually follow the local school calendar and school day, and are staffed with both a licensed teacher and highly qualified teacher assistant.

Special Education

Since the 1960s, there has been a virtual avalanche of federal legislation that relates directly or indirectly to individuals with disabilities, particularly children and youth (Cryer & Clifford, 2003). Awareness of the laws that ensure equal opportunities to individuals with disabilities is vitally important for the following reasons:

- Knowledge of the language and intention of the laws empowers families to advocate more effectively for their children and strengthens their ability to participate fully as partners in their children's educational teams.
- As independence and self-sufficiency for individuals become increasingly important outcomes of special education, it is important that individuals with disabilities understand the laws and their implications for making decisions.
- Knowledge of the laws can assist professionals in understanding the entire service delivery system, ensure protection of civil rights, and improve collaboration with other agencies and families.
- Knowledge of the laws can help parents and professionals work together on behalf of children to make the equal education opportunity guaranteed by law a reality (Cryer & Clifford).

Congress originally enacted IDEA in 1975 to ensure that children with disabilities have the opportunity to receive a free, appropriate public education, just like other children. The law has been revised many times over the years. Congress passed the most recent amendments in December 2004, with final regulations published in August 2006. The IDEA Improvement Act of 2004, clarified that the age range for developmental delay is ages 3 through 9, or any subset of that range, including ages 3 through 5 (Lazara et al., 2007).

Inclusion

The National Association for the Education of Young Children (NAEYC, 2003) position statement on early childhood curriculum, assessment, and program evaluation suggested that a snapshot of children and families served by early childhood programs today would look very different than one taken in 1990. The snapshot of today would include more children with disabilities as well as more children who are immigrants, live in poverty, or whose primary home language is not English. The diversity of the children and families served by early care and education programs has increased and will probably continue to increase in the future.

In recent years, there has been increased recognition of the importance of early education by those working towards educational reform (Bowman, Burns, & Donovan, 2001; Shonkoff & Phillips, 2000). Federal development of policies that focus on state standards for prekindergarten children has increasingly linked curriculum and evaluation frameworks. The standards being developed by states should apply to children with disabilities and other special needs (Scott-Little, Kagan, & Frelow, 2003). According to the federal IDEA, children with disabilities must be included in any state- or district-wide programs that are established for typically developing children.

Quality of Childcare

In the United States approximately 13 million infants, toddlers, and preschool children are regularly in non-parental care, including 45% of children younger than 1 year (NAEYC, 2005). Because of these record numbers of children in non-parental care, the question arises: Does the quality of childcare matter? This question is linked to Belsky and Steinberg's (1978) review of 40 child-care studies.

Concerns about improving the quality of childcare are well-founded. Research consistently provides evidence for the correlation between quality of care and children's developmental outcomes. Indicators, such as adult-child ratios, consistency of caregiver, and responsive care-giving have been associated with positive developmental outcomes (Howes & Rubenstein, 1985; Howes & Stewart, 1987; Whitebook, Howes, & Phillips, 1990). Consistent findings have emerged across studies (Committee on Family and Work Policies, 2003; Vandell, 2004). In child-care environments where adult-child ratios are lower, caregivers are more stimulating, warm, responsive and supportive (National Institute of Child Health and Human Development Early Child Care Research Network [NICHHD], 2000); and process quality scores are higher (NICHHD; Phillips, Mekow, Scarr, McCartney, & Abbott-Shim, 2000).

Further, there is increasing evidence that engaging in positive relationships with adults can assist in protecting children from negative early experiences (NICHHD, 2000). Children who receive

continual care by trained caregivers who understand and implement developmentally appropriate curriculum are better equipped for life's academic and social emotional experiences (Peisner-Feinberg et al., 2001). Fontaine, Torre, Grafwellner, and Underhill (2006) found that formal training in early childhood education produces higher quality teacher behaviors and can be linked to improved child outcomes.

Strong documentation exists for linking high-quality early childhood experiences with positive child development outcomes. Longitudinal studies demonstrate that children who engage in high-quality early care experiences, when compared to peers without this experience:

1. have greater social competency (Andersson, 1992; Howes, 1990);
2. have fewer behavioral problems in elementary school (Howes);
3. have higher levels of language development (Andersson); and
4. perform better in all school subjects (Andersson).

Methodology

In order to determine the relationship between quality preschool programming and child outcomes, this evaluation gathered a variety of types of information from a range of sources in order to provide a comprehensive look at the four identified blended classrooms in this study. The researcher gathered information on child enrollment characteristics from the school databases. Information obtained was child age, race, and disability category. Data regarding program quality was collected by a team assigned by the state of North Carolina using the Early Childhood Environmental Rating Scale-Revised and interviews with teachers conducted by the researcher. Child outcomes were measured using the Learning Accomplishment Profile-Third Edition with three administrations conducted both by teachers in the classrooms and the researcher.

Participants

A sample of children was used from each of the five classrooms of preschool children. At the start of the 2009-2010 school year permission was requested from all parents of children enrolled in the preschool inclusive blended classrooms to have their child participate in this study (Appendix A). The student population was 48, but percentage of participants may be less than the total population.

Teachers at each of the four school sites were asked to participate in an interview with the researcher. A panel of experts within the early childhood field validated the interview questions. The interview questions pertained to the observations using the ECERS-R by state personnel. The researcher hoped to triangulate data obtained through classroom quality and child outcomes by conducting the interviews.

Classroom Quality

Quality of classroom practices were observed using the ECERS-R as the main measure of quality for preschool-age children. Smart Start conducted these evaluations. The ECERS-R has been used in several major studies of early care and education over the past 20 years and is considered one of the most reliable program quality assessments in the early childhood field (Harms, Clifford, & Cryer, 1998). The measure consists of 43 items divided into seven sub-scales. Each

item is rated on a scale of 1-7, with 7 representing excellent quality. Each sub-scale consists of four to ten items that provide an overall profile of the sub-scale. The observer assigns a descriptive value on a scale of 1-7, which describes the quality of the early childhood environment for that sub-scale. Item scores are averaged together to form individual sub-scale scores as well as a composite score of overall quality. Thus, a program can earn an overall score in the range of 1-7. Typically 2.99 or less is inadequate, 3-3.99 represents minimal care, 4-4.99 is adequate, 5-5.99 is good and anything 6 or above is considered excellent (Harms et al.). Sub-scale scores can be interpreted the same way. In this evaluation, the ECERS-R score of 5 is used as representative of overall quality as defined by More at Four guidelines.

The ECERS-R was designed to assess the quality of early childhood environments and assist in the development of early childhood programming. The scale targets seven categories:

1. Space and Furnishing;
2. Personal Care Routines;
3. Language and Reasoning;
4. Activities;
5. Interactions;
6. Program Structure; and
7. Parents and Staff.

The ECERS-R should be used for groups of children in classrooms ages 2½- to 5-years old. It is a criterion-referenced tool designed to assess the quality of early childhood learning environments.

Child Outcomes

Individual assessments of a random sample of children from the four blended classroom sites were conducted three times in a 6-month period to provide child outcome data. Assessments were conducted at three separate times in a 6-month period by the researcher and classroom teacher in language and literacy skills, physical skills, general knowledge and social skills. This data provided information about the amount of developmental growth experienced by these children.

The Learning Accomplishment Profile-Third Edition (LAP-3) is a criterion-referenced assessment for children functioning in the 36-72-month age range. The purpose of the LAP-3 is to assist teachers, clinicians, and parents in assessing individual skill development of young children. The results can be used to generate a complete picture of a child's developmental progress across seven developmental domains so that individualized, developmentally-appropriate activities can be planned and implemented. This assessment can be used with children with typical and atypical development. Child

The results of the LAP-3 provide a complete picture of a child's developmental progress so that individualized, developmentally-appropriate activities can be planned, implemented and monitored. This assessment can be used with any child functioning in the 36-72-month age range including children with disabilities. The LAP-3 is not a "normed" or "standardized" instrument, so its results should not be used in isolation to determine eligibility for special services or for other purposes that require standardized instruments. However, LAP-3 results are often used in

combination with standardized instruments to determine developmental levels of functioning and eligibility for special services. Professionals often choose the LAP-3 because it gives a much more complete assessment of a child's acquired skills and emerging skills than most standardized instruments (Chapel Hill Training Outreach Project Inc., 2007).

The LAP-3 provides specific skill information for mastered and emerging skills. These results indicate broad patterns of development by domain as well as individual skill development (Hardin & Peisner-Feinberg, 2004).

Data Collection

Data for this study were collected starting at the beginning of the 2009-2010 school year. Child outcomes data were collected over a period of 6 months, the first LAP administration being completed in August 2009, the second in December 2009, and the third in February 2010. This researcher was available to conduct the assessments as requested by participating schools. A team assigned by the state of North Carolina with all four sites being complete by November 2009 conducted the ECERS-R. Interviews with the teachers were completed after the ECERS-R evaluation to determine teachers' opinions regarding how the ECERS-R affects child outcomes.

Scores of the ECERS-R were analyzed using multiple regression analyses to determine the relationship among the sub-scores and composite. Data gathered by LAP-3 scores were analyzed using factorial repeated measure ANOVA.

Findings

Early education includes all of a child's experiences at home, in childcare and other preschool settings. Research has shown that high-quality care in the early years can benefit the development of language skills, socio-emotional skills and cognition. As more children spend time in non-familial care, the quality of the early care and education setting is of great importance. Children's experiences, and the skills and characteristics they develop during the preschool years are critically important to success in future school years (National Early Childhood Accountability Task Force, 2007).

This evaluation focused on the relationship of quality preschool programming and the impact on child outcomes. The newly blended preschool inclusive program is for children in this county who have been identified as having a disability according to federal and state guidelines or are at risk as defined by the North Carolina More at Four state guidelines. The researcher used the Early Childhood Environmental Rating Scale-Revised to determine the quality of the blended classrooms. The Learning Accomplishment Profile-Third Edition was used by the researcher to collect information on student growth and development during the 2009-2010 school year.

Data collected in this case study were acquired from a variety of sources including both qualitative and quantitative collection methods. This portion of the study reports the data collected and is organized by participant data then research questions.

Participants

A sample of children was used from each of the four blended classrooms of preschool children. At the start of the 2009-2010 school year, permission was requested from all parents of children

enrolled in the preschool inclusive blended classrooms to have their child participate in this study (Appendix A). The student population was 48, but percentage of participants was less than the total population with a total of 34 student participants at 71%. There were a total of 19 males, 15 females and a total of five disability categories—none or no diagnosed disability, developmentally delayed, autism, hearing impaired, and other. There were 14 children with no diagnosed disability, and 20 with a variety of diagnoses. There were also a number of ethnicities including Caucasian, African-American, Hispanic, Asian and Multiethnic. African-Americans made up the majority of the study with 41% of the sample. Table 1 captures the frequency and percent of gender, disability category, and ethnicity of the participants in this study.

Table 1
Gender, Disability Category and Ethnicity of Participants

	Caucasian		African-American		Hispanic		Asian		Multi	
	M	F	M	F	M	F	M	F	M	F
Developmental Delay	2	0	2	3	2	3	0	0	2	1
Autistic	1	0	2	0	0	0	0	0	0	0
Hearing Impaired	0	0	1	0	0	0	0	0	0	0
Other	0	0	0	0	0	1	0	0	0	0
None	1	1	2	4	2	3	1	0	0	0

Research Question 1

What differences exist on the results of the Learning Accomplishment Profile-Third Edition (LAP-3) for blended inclusive preschool students over a period of 6 months?

Individual assessments of the 34 participants from the four blended classroom sites were conducted at three separate times in a 6-month period by the researcher and classroom teachers in gross motor, fine motor, prewriting, cognitive, language and naming, self help, and personal social skills. This data provided information about the amount of developmental growth experienced by these children. Table 2 shows the means of all scores for the 34 participants at each of the three administrations. The mean for each administration demonstrates growth in all areas.

Table 2
Mean at Each of the Three Administrations of the LAP-3

Sub-Score	Admin 1	Admin 2	Admin 3
Gross Motor	37.4118	40.4412	43.9118
Fine Motor	26.3824	31.1765	34.7941
Prewriting	20.2941	23.6765	25.7647
Cognitive	33.5882	40.0588	45.5882
Language	33.8824	39.8824	41.8529
Self Help	33.7941	38.4118	40.9412
Personal Social	31.6176	35.7647	37.5882

A repeated measures analysis of variance was used to analyze each test area of the LAP-3 at each of the separate administrations. Repeated measures were used for analyses due to the same measurement being used three times on each of the 34 participants. Mauchly's Test of Sphericity was conducted on all seven test areas of the LAP-3. If Mauchly's Test statistic is significant $p<.05$, it is assumed that the condition of sphericity has not been met and it cannot be assumed that the variances between the three sets of scores are equal (Huck, 2004). If Mauchly's test is nonsignificant $p>.05$, then it is reasonable to conclude that the variances between the three scores are equal and sphericity was met (Huck). Table 3 conveys the Mauchly's Test of Sphericity scores for each of the seven test areas from the LAP-3.

Table 3
Mauchly's Test of Sphericity on the LAP-3

Within Subjects Effect	E		
	Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Gross Motor	.721	.745	.500
Fine Motor	.878	.924	.500
Prewriting	.684	.703	.500
Cognitive	.912	.963	.500
Language & Naming	.756	.785	.500
Self Help	.733	.759	.500
Personal Social	.570	.577	.500

If the assumption of sphericity is violated as it is with Gross Motor (GM), Prewriting (PW), Language Naming (LN), Self Help (SH) and Personal Social (PS), due to $p < .05$, then the Huynh-Feldt correction will be used when E>.75 and Greenhouse-Geisser will be used when E<.75 (Huck, 2004). Therefore, Huynh-Feldt will be used for Language Naming and Greenhouse-Geisser for Gross Motor, Prewriting, Self Help, and Personal Social.

Once the assumption of sphericity has been corrected, and all levels are $p<.05$, then the null hypothesis of no difference in mean performance between the three times of measurement is rejected. Instead it is concluded that there is a significant difference between the three means. Table 4 displays the ANOVA with accompanying significance levels for each area with the corrected values using the Sphericity Assumed for the areas of Fine Motor and Cognitive, Greenhouse-Geisser for Gross Motor, Prewriting, Self Help and Personal Social, and Huynh-Feldt used for Language Naming. The significant values are 0.0000 for all domains assessed meaning that there is significant change between the means between each administration.

Table 4
ANOVA LAP-3

		Type III Sum of Squares	Degrees of Freedom	Mean Square	F	Sig.
Gross Motor	Greenhouse-Geisser	719.353	1.441	499.083	15.777	.000
	Error	1504.647	47.565	31.634		
	Total	2224.000	49.006	530.717		
Fine Motor	Sphericity Assumed	1210.725	2.000	605.363	32.136	.000
	Error	1243.275	66.000	18.837		
	Total	2454.000	68.000	624.200		
Prewriting	Greenhouse-Geisser	518.255	1.368	378.970	68.847	.000
	Error	248.412	45.129	5.505		
	Total	766.667	46.497	384.475		
Cognitive	Sphericity Assumed	2453.020	2.000	1226.510	12.334	.000
	Error	6562.980	66.000	99.439		
	Total	9016.000	68.000	1325.949		
Language Naming	Huynh-Feldt	1172.020	1.570	746.459	42.132	.000
	Error	917.980	51.814	17.17		
	Total	2090.000	53.384	736.629		
Self Help	Greenhouse-Geisser	893.078	1.467	608.825	10.480	.001
	Error	2812.255	48.407	58.096		
	Total	3705.333	49.874	666.921		
Personal Social	Greenhouse-Geisser	636.608	1.139	558.777	58.563	.000
	Error	358.725	37.596	9.541		
	Total	995.333	38.735	568.318		

Research Question 2

What is the relationship between quality Early Childhood Environmental Ratings Scales-Revised (ECERS-R) and outcomes on the Learning Accomplishment Profile-Third Edition for preschool students in the blended preschool classroom?

Quality of classroom practices was observed using the ECERS-R as the main measure of quality for preschool-age children. The measure consists of 43 items divided into 7 sub-scales. Each item is rated on a scale of 1-7, with 7 representing excellent quality. Each sub-scale consists of four to ten items that provide an overall profile of the sub-scale. The observer assigns a descriptive value on a scale of 1-7, which describes the quality of the early childhood environment for that sub-scale. Item scores are averaged together to form individual sub-scale scores as well as a composite score of overall quality. Thus, a program can earn an overall score

in the range of 1-7.

All four blended preschool programs involved in this study were evaluated using all seven sub-scale scores. Typically 2.99 or less is inadequate, 3-3.99 represents minimal care, 4-4.99 is adequate, 5-5.99 is good and anything 6 or above is considered excellent (Harms et al., 1998). Sub-scale scores can be interpreted the same way. In this evaluation, the ECERS-R score of 5 is used as representative of overall quality as defined by North Carolina More at Four guidelines. Table 5 outlines the individual sub-scores for all four schools as well as composite classroom quality scores. All four blended classrooms received composite scores above 5.00 representing each classroom has overall good quality as defined by More at Four. Each classroom had low scores in the areas of space and furnishings and personal care routines with scores between 4-4.99, indicating those areas were only adequate. All other areas were between 5-5.99, indicating good scores with some in the excellent range of above 6.00.

Table 5
ECERS-R Scores

	School 1	School 2	School 3	School 4
Space & Furnishing	4.80	4.90	4.75	4.25
Personal Care	4.60	4.40	4.90	3.90
Language/Reasoning	5.75	5.25	5.75	6.00
Activities	5.20	5.10	5.60	4.75
Interactions	6.00	5.60	6.60	6.50
Program Structure	5.50	5.50	6.20	6.75
Personal Social	6.50	5.90	5.50	6.60
Composite	5.50	5.20	5.60	5.50

To examine the relationship between classroom quality and child outcomes, linear regression analyses were used for all test areas of the LAP-3 with the overall classroom quality score of the ECERS-R. Table 6 outlines the regression analysis for each domain of child development assessed using the LAP-3. Using the adjusted R squared as a more conservative estimate of explanation of the variance, the overall classroom quality explains very little of child outcomes on the LAP-3. All scores except personal social have between -0 and -2%, which explains very little of the variance, yet personal social has 3% explanation of the variance.

Table 6
Regression Analysis of LAP-3 Sub-Scores and ECERS-R Composite

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Gross Motor	.168	.028	-.002	7.10193
Fine Motor	.128	.016	-.014	4.08024
Prewriting	.082	.007	-.024	6.55908
Cognitive	.228	.052	-.022	18.81021
Language & Naming	.086	.007	-.024	17.22365
Self Help	.170	.029	-.001	5.72971
Personal Social	.247	.061	.032	8.11876

To more closely examine the relationship of quality care scores and LAP-3 domain scores this researcher regressed sub-scores of the LAP-3 as the dependent variable to each sub-scale score of the ECERS-R as the independent variable. Tables B1-7 (Appendix B) capture the regression analyses for Gross Motor, Fine Motor, Prewriting, Cognitive, Language and Naming, Self Help and Personal Social, respectively, with each sub-scale score of the ECERS-R.

When the sub-scores from the LAP-3 of gross motor, prewriting, cognitive, and language and naming were regressed against all sub-scores of the ECERS-R, no areas of quality preschool programming explained more than 3% of variance positive or negative in any of those four domains of the LAP-3 (Appendix B). Fine motor analysis shows that space and furnishings explain about 10% of the variance with the rest of the sub-scores having an explanation of less than 6% of the variance. The regression analysis of personal social skills show that 16% of the variance can be explained by personal care routines, 19% can be explained with activities and 11% with parents and staff. Self-help regression analysis shows the greatest area of explanation with 25% of variance explained by parents and staff, then activities with 16% and personal care routines with 9% of variance in self-help skills. Table 7 captures the highest percentage explanations of variance.

Table 7
Sub-scores of LAP-3 Regressed against Sub-Scores of the ECERS-R

	R	R^2	Adjusted R	Standard Error of the Estimate
			Fine Motor	
Space/Furnishings	.364	.105	.105	3.83197
			Personal Social	
Personal Care	.440	.194	.169	7.52196
Activities	.463	.214	.190	7.42637
Parents and Staff	.372	.139	.112	7.77570
			Self Help	
Personal care	.350	.123	.095	5.44672
Activities	.435	.189	.164	5.23579
Parents and Staff	.530	.281	.259	4.93038

Teacher Interviews

Teacher interviews were conducted with four of the five teachers in the four blended preschool classrooms. The researcher was the teacher of the fourth classroom and did not participate in the interview. One of the classrooms had two teachers that team teach resulting in four teacher interviews. Three questions were asked of the teachers after the ECERS-R was completed in their classrooms. A team of experts in the early childhood and early childhood special education fields validated the three questions.

1. How relevant do you think the overall score and sub-scores are in predicting child growth or outcomes?
2. What items of the evaluation gave you the greatest insight into your classroom?
3. How will the overall score or individual sub-scores change what you do in the room?

All four teachers responded in similar ways. Common themes from the interview included the response from teachers who did not feel that the ECERS-R adequately evaluated quality. They felt that the areas of the ECERS-R that were most important predictors of quality were the interactions, and language and reasoning. The only changes that they made in their rooms following the evaluation were in the areas of space and furnishing, rearranging the room or providing different areas in the room. Teacher interviews support data and evidence from this study relating to quality classroom environments and the relationship to child outcomes.

Summary

The purpose of this study was to determine the quality of the local blended preschool program and if the level of quality affected the outcomes of children enrolled in the local preschool program. Data were presented regarding the case study. LAP-3 scores for seven areas of development, ECERS-R scores for classroom quality as well as sub-scores, and teacher interviews were used to compile responses to the research questions. The information collected was used to support the case study of the interaction of quality preschool programming and child outcomes using the LAP-3.

Conclusions

Research Question 1

What differences exist on the results of the Learning Accomplishment Profile-Third Edition (LAP-3) for blended inclusive preschool students over a period of 6 months?

Examination of the mean child outcome scores on the LAP-3 (see Table 4) showed growth in all domains assessed over the 6-month period. Upon closer examination the averages of growth were adequate with 14.8% in gross motor, 24.2% in fine motor, 26.3% in prewriting, 21.3% cognitive, 18.9% in language and naming, 17.3% in self help and 15.7% in personal social. As noted by the percentages of growth, prewriting and fine motor were the strongest areas of growth with gross motor and personal social being the lowest. The ANOVA used to evaluate the student growth supports what the researcher found in examining the difference of the means.

Research Question 2

What is the relationship between quality Early Childhood Environmental Ratings Scales-Revised (ECERS-R) and outcomes on the Learning Accomplishment Profile-Third Edition for preschool students in the blended inclusive preschool program?

The blended preschool program examined met the state standard for overall quality of care with a composite score of greater than 5.00 on the Early Childhood Environmental Rating Scales-Revised. Although this score allows for an understanding of good care, it is an average of the sub-scale scores, some of which are much below the standard score of 5.00. While examining these scores there is a pattern of higher scores in language and reasoning, activities, interactions, program structure and parents and staff except in school 4 with a score of 4.75 in activities. The two lowest scores are in the area of space and furnishing, and personal care routines (see Table 7).

A study conducted by Sylva et al. (2006) has demonstrated the predictive validity of the ECERS-R in relation to children's language and social/behavioral development. In terms of construct validity, research has indicated that the ECERS-R can be broken down into two sub-scale constructs, one related to caregiver-child interaction and the other related to the quality of the early childhood environment (Scarr et. al., 1994; Sylva et al.). If the constructs of Scarr et al. are applied to the scores reported in this case study, caregiver-child interactions consistently rate in the good to excellent range and quality of the environment scores range in the adequate to good range.

The LAP-3 scores showed growth in all domains and developments, and the composite score of classroom quality was considered good by North Carolina state standards. When scores were examined using multiple and linear regression with both composite and sub-scale scores, there was no statistical evidence found that there was any relationship or explanation between the two. All correlation levels fell below 20%, which is statistically insignificant. So, it is assumed by this researcher that the relationship between the two has been proven to be non-existent.

The researcher found that the teacher interview responses regarding the ECERS-R and its lack of influence on their classrooms were confirmed by the findings that the ECERS-R quality classroom sub-scale and composite scores have no significant impact on child outcomes.

Recommendations

As a result of this case study, long-standing beliefs and research assumptions have been questioned due to the lack of relationship found in these four classrooms between classroom quality and child outcomes. This researcher had hoped to prove that quality of care positively impacted child outcomes in the blended preschool classrooms; given the data and the reports analyzed, this hypothesis has been rejected. This researcher has several recommendations for future research that could impact interpretation of the current case study results:

1. A longitudinal study could be done to follow the children in these classrooms to observe if child outcomes continue to grow. The current school district is using the data collected during this time period to continue with a longitudinal study. The researcher hopes that the information will be fruitful for future studies.

2. A cross-sectional comparison study could be done comparing children in different classrooms, at different schools and with different teachers. This should include those children in the blended preschool classrooms, More at Four classrooms, and self-contained Exceptional Children's classrooms to examine the rate of growth of students in each of those classrooms.
3. The teacher's years of experience and degree could be analyzed to see what impact those had on both outcomes and sub-scale scores of classroom quality.
4. Pre- and post-examinations using the ECERS-R allowing for classroom teachers to use the information for professional growth could show more relationships between the quality and child outcomes.

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Appendix A

LAP-3 Sub-Scores Regressed against ECERS-R Sub-Scores

Table B1

Gross Motor Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.197	.039	.009	7.06222
Personal Care Routines	.034	.001	-.030	7.19976
Language and Reasoning	.190	.036	.006	7.07311
Activities	.009	.000	-.031	7.20372
Interaction	.225	.050	.021	7.01995
Program Structure	.233	.054	.025	7.00509
Parents and Staff	.028	.001	-.030	7.20127

Table B2
Fine Motor Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.364	.132	.105	3.83197
Personal Care Routines	.272	.074	.045	3.95850
Language and Reasoning	.296	.088	.059	3.92918
Activities	.248	.061	.032	3.98564
Interaction	.165	.027	-.003	4.05779
Program Structure	.257	.066	.037	3.97574
Parents and Staff	.242	.059	.029	3.99112

Table B3
Prewriting Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.213	.045	.016	6.43006
Personal Care Routines	.265	.070	.041	6.34552
Language and Reasoning	.058	.003	-.028	6.57005
Activities	.245	.060	.031	6.38081
Interaction	.008	.000	-.031	6.58130
Program Structure	.134	.018	-.013	6.52205
Parents and Staff	.145	.021	-.009	6.51153

Table B4

Cognitive Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.283	.080	.052	
Personal Care Routines	.062	.004	.027	
Language and Reasoning	.267	.071	.042	
Activities	.002	.000	-.031	
Interaction	.307	.095	.066	
Program Structure	.326	.106	.078	
Parents and Staff	.025	.001	-.031	

Table B5
Language and Reasoning Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.235	.055	.026	16.80321
Personal Care Routines	.113	.013	-.018	17.17821
Language and Reasoning	.138	.019	-.012	17.12284
Activities	.053	.003	-.028	17.26390
Interaction	.199	.040	.010	16.94154
Program Structure	.274	.075	.046	16.62433
Parents and Staff	.046	.002	-.029	17.26972

Table B6

Self Help Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.100	.010	-.021	5.78560
Personal Care Routines	.350	.123	.095	5.44672
Language and Reasoning	.058	.003	-.028	5.80491
Activities	.435	.189	.164	5.23579
Interaction	.295	.087	.059	5.55488
Program Structure	.196	.038	.008	5.70230
Parents and Staff	.530	.281	.259	4.93038

Table B7
Personal Social Regression Analysis with Sub-Scores of the ECERS-R

	R	R Square	Adjusted R Square	Std. Error of the Estimate
Space and Furnishings	.210	.044	.014	8.19124
Personal Care Routines	.440	.194	.169	7.52196
Language and Reasoning	.003	.000	-.031	8.37821
Activities	.463	.214	.190	7.42637
Interaction	.218	.048	.018	8.17644
Program Structure	.005	.000	-.031	8.37812
Parents and Staff	.372	.139	.112	7.77570