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The Effect of Preschool Attendance on the First Grade Readiness Skills of Kindergarten Students

Mary Dell Fish

Abstract

The purpose of this study was to investigate the effect of attending preschool on the first grade readiness skills of kindergarten students at Jasper County Primary School (JCPS). Preschool was defined as a structured education program that serves children under school age. The Georgia Kindergarten Assessment Program-Revised (GKAP-R)(1996) was used to determine academic achievement. The students were divided into two groups of 30 randomly selected kindergarten students from JCPS. The instrument used to test achievement was the GKAP-R, a performance-based assessment designed to mark student progress during the kindergarten year. The students were tested at the beginning of kindergarten and again at the end of the kindergarten year at JCPS. There was no significant difference in performance on the GKAP-R between the group that had a preschool experience at JCPS and the group that did not have a preschool experience. The findings of the study indicated that attending preschool did not result in higher achievement in the skills measured by the GKAP-R at the end of the year. This study was significant in that it allowed administrators, teachers, and parents to recognize there was no effect of attending preschool on the first grade readiness skills of kindergarten students at the end of the kindergarten year.

“Imagine an achievement train, pulling out of the station at birth and traveling over a period of 20 years toward responsible and productive adulthood” (Dryfoos, 1990, p.1). Some infants are brought into this world by women who eat the right foods, listen to classical music and read children’s books to their unborn children, and there are infants brought into this world by women who choose not to take care of themselves. In either case, the ramifications of this early mindset carry over into the child’s development once born. Some of these children never find a good seat on the achievement train and are bound for failure. It is believed that early intervention, quality preschool programs, can make a difference (Jones, 1999). Benton’s (2000) study on the effects of pre-kindergarten programs

on kindergarten achievement summarized the Carnegie Task Force on Learning's publication *Years of Promise* in that children who are fortunate enough to attend a high-quality preschool program would increase their chances of achieving higher levels than children who do not. Many recommendations to support high standards for preschool environments were contained in her study.

As stated by Zigler, a professor sometimes called the father of Head Start, "Research indicates only 14% of early childhood education programs are high quality" (Jones, 1999, p. 2). Children who attended a quality preschool program would achieve better academically, socially, and emotionally, once they start kindergarten (Jones, 1999, p. 3).

Research on School Readiness Skills. "The U.S. seems to be a patch work of programs...never really a system" for early childhood education (Lewis, 2001, p. 103). A single study by Taylor, Gibbs, & Slate (2000) analyzed scores on the Georgia Kindergarten Assessment Program (GKAP) (Taylor, 2000) to determine if preschool attendance affects school readiness. Higher school readiness, emotional, and social skills displayed by children who attend preschool, especially by female attendees outperformed males in social skills (Taylor, 2000).

In a review of a study by Gilliam and Zigler from Yale University Child Study Center, Jacobson (2001) found that state funded preschool programs were evaluated and that children who attended these programs displayed better social, motor, language, cognitive, and literacy skills. State-funded preschools were defined as programs that serve 3-5 year olds with "classroom-based educational experience" (p. 18) and were "primarily funded and administered at the state level"(p. 18). Program effectiveness was diluted by the size and by the agencies responsible for implementing the preschool program. There was a "general lack" in the area of behavior, as it is believed that preschool programs can impact children's behavior in a positive manner observed even into adulthood. Children who showed gains in achievement in preschool programs generally lost this advantage one to two years into primary education. Young children needed to continue to excel in preschool programs, and then the school had to take over and continue to help children to develop accordingly (Jacobson, 2001). "Children

fortunate enough to attend a high-quality preschool ...enter primary grades with adequate preparation have a greater chance of achieving to high levels than those who do not” (Benton, 2000, p. 7).

Every state used a variety of tests for school readiness in preschool programs. Three states in the study by Gilliam and Zigler (2000) used only preschool children with no control group for comparison of scores. This study pointed out the sampling bias on tests and that there was a great need for valid reliable tests in preschool.

The *Prekindergarten Saginaw Objective Reference Test* (Prekindergarten Program, 1999-2000) developed by the Saginaw Public Schools in Michigan combined assessment of cognitive skills, psychomotor skills and parental participation areas to successfully determine attainment of 15 out of 16 goals over the school year. Teacher and program differences claimed fault on the one psychomotor objective not adequately attained, with further instructional development planned to attain this objective (Prekindergarten Program, 1999-2000).

Another significant study by Brooksgunn and Duncan (1997) revealed that there was a substantial relationship between achievement and poverty. Their research supports “...effects on child and adolescent well-being...” (p. 55) by poverty, but the timing, depth, and duration of the effects of poverty on childrens’ achievement are derailed by early interventions in preschool programs. Differences were also noted in classroom behavior in disadvantaged and advantaged children, such as self-confidence, attitude toward school, expectations for success, dependency, and preference for challenge. Reynolds (1996) documents the effects of preschool interventions as making a difference as far as sixth grade in his research. Participation in preschool was credited for the higher reading achievement and less grade retention observed in this longitudinal study. In the area of measures for math achievement, there was a lack of empirically supported screening measures for achievement.

The use of benchmarks instead of tests was proven to be more accurate in measuring progress of preschool and kindergarten students in a study into school districts in Virginia (Bodrova, Paynter & Leong 2001).

There was a distinct relationship between a teacher’s strategies and higher academic achievement (Abbott-Shim, Lambert, &

McCarthy, 2001). A longitudinal study of Head Start children implicated goals and student motivation in achievement (Slaughter-Defoe & Rubin, 2001). Using developmentally appropriate practices motivated at-risk students and the academic achievements they attained resulted in higher assessments until first grade (Huffman & Speer, 2000).

One reason for a decrease in preschool benefits was children living in poverty show less benefits, as they get older. One approach, the Abecedarian Project, utilized a regular classroom teacher and a floating teacher who coordinated in the activities in the home to coincide with classroom activities. No documentation was recorded on the home activities, so results of the project benefits could not be attributed to the use of home activities (Bracey, 1996).

A demonstration study of extending Head Start basic needs up to four years was conducted by the U. S. Department of Health and Human Services. The ideology behind Head Start's parent involvement, educational enhancement, family social support, health and nutrition, and cooperation between public schools and Head Start programs was a winning contribution to educating the whole child. With varied results, findings indicated an uneven show of success in implementing the various services (Brezaussek, Katholi, Lanzi, Lawrence, Phillips, Ramey, Ramet, & Snyder, 2000).

Currie and Thomas (2000) studied the effects of Head Start on various races and documented that black children who participate in the program later attend public schools that are below standards, making benefits from the program fade quickly. Closing the learning gap was the subject of a study by Lewis (2001). All teachers realized on the first day of school the various levels represented in the class. Income and parental involvement or the lack of played a significant role in this learning gap. Studies have been conducted on the amount of hours per day children attend preschool either three or five hours. Results showed a difference in only the areas of large and small motor capabilities, not in cognitive areas (Glazier, 2001).

Screenings and tests to show developmental delays in young children before they enter school pinpointed areas of weakness that might allow a child to fall significantly behind their peers. These screenings included parent surveys that give insight into the background of the child. These surveys reflected the wide array of social, economic, geographical, and cultural backgrounds, and could be

used to predict later school success in some areas. Private preschool children scored the highest on pre-reading skills (Haney, 2000).

Preschool language programs utilized screenings to identify speech and language disorders. Research by Stern and Connell (1995) on the Adelaide preschool language unit describes areas for disorders, when speech and language disorders occur together, significantly lower achievement could be expected even with intensive intervention. Early intervention, developmentally appropriate practices, and parental involvement have positive effects on later academic success of young children (Phillips, 2000). Special needs children benefit from literacy-rich environments and have proven to have a higher success rate in elementary grades (Katims and Pierce, 1995). "Substantial research supports the efficacy of early intervention services for children with developmental delays from birth to age 5" (Powers, 2000, p. vi). Head Start guidelines follow the mandates of federal legislation, IDEA, P.L. 101-476 by providing services to infants, toddlers, and preschoolers age 3-5 (Powers, 2000).

According to research by Krieger (2000), a quality preschool program needs to include high quality staff that has a formal education and experience with young children. Even directors need to be highly qualified in order to ensure a professional trusting center. Research tended to indicate that staff development is usually haphazard and training is completed through mentoring. "Results have indicated that teachers' educational backgrounds, teaching efficacy, and parent-teacher relationships" vary too widely to detect correlational factors and to reduce limitations that make a difference. Teachers were not carbon copies of each other. Teaching strategies, discipline, and program curriculums differ from teacher to teacher, program to program, with no standards or regulations that unite. Modeling literacy skills, adults play a very important role in kindling children's interest in reading and writing.

School mobility influenced assessment of early childhood programs (Reynolds & Temple, 1999). "Hierarchical regression analysis indicated that frequent school changes in the primary grades were related to lower achievement levels" (Mantzicopoulos & Knutson, 2000, p. 307). Lower achievement levels resulted with children who attended Head Start at four years old. Buntaine and Costenbader (1997) found no more significant academic effectiveness of preschool attendance over more than one year of enrollment.

Early Childhood Program Research and Evaluation (1996), outlined recommendations that cited measurement scales for development of children must assess the specific criteria contained with a preschool program. Measures used to determine development must be valid and reliable in that they were normed to a similar preschool population. Case studies, it was suggested, would be better options for research instead of control-comparison groups.

Eager to Learn: Educating Our Preschoolers (2000) examined the results of a study by the Committee on National Childhood Pedagogy on a variety of research implemented on early learning and development of children ages two to five years old that attended preschool programs. Overall, the quality of the program made a difference in the cognitive, emotional, and social skills of the child.

Cognitive, emotional, and social readiness skills were impacted by neurodevelopment delays, impaired attachment relationships, maltreatment, and disadvantaged socioeconomic status (SES), which lead to the term at-risk children, who were enrolled in various preschool programs. These causal factors were identified and interventions were incorporated into the preschool programs to decrease early school failure. Preschool programs should be tailor-fit by policies, but the weight of more policies adds to the load already heavy with previous policies to benefit early childhood education programs (Peth-Pierce, 2000).

High-quality preschool programs for young children produced significant long-term benefits because they empower young children, parents, and teachers with lasting effects. School readiness skills provided by these programs enabled young children to initiate their own learning activities rather than acting as passive recipients of information through developmentally appropriate practices. This active learning encouraged children to solve their everyday intellectual, social, and physical problems and to assume a measure of control over their environment. "Researchers have found that family involvement and expectations in a child's education increase academic success" (Halliburton, 2000, p. 16).

Parents became involved by being partners in the teaching process. Long-term benefits of parent involvement helped to strengthen the parents' ability to support their children's development by learning to control social, emotional, and cognitive abilities

(Benton, 2000). Quality preschool programs included teachers that were trained in successful in-service curriculum training that promotes academic achievement and are supported by knowledgeable administrators who observe and give feedback on academic achievement. The evidence in these studies provided results that point to capable children developing in a way that invites reduction of school failure, poverty, crime, drug abuse, and teen pregnancy (Benton, 2000). Administrators, teachers, and parents need to recognize the effect of attending preschool on the first grade readiness skills of their kindergarten students. This study will provide local administrators with research as to whether or not the current preschool program actually benefits students academically. In addition, this study will help administrators and educators recognize if changes need to be made to the current curriculum of preschool. Results from this study could also have an effect on the amount of monetary support provided both locally and from the state. Thus the purpose of this study was to investigate the effect of attending preschool on the first grade readiness skills of kindergarten students at JCPS.

Method

Participants

Jasper County Primary School (JCPS) is a public funded county school located in Monticello, Georgia. The school serves 350 kindergarten through second grade children. Children live as far away as twenty-two miles from the school. The majority of children ride the school bus daily. The Jasper County School System has been a school-wide Title I school for three consecutive years. The preschool program also housed in this building is accredited by the National Association of Educators for Young Children (NAEYC) and has about 120 students aged three and four. The rate of free and reduced lunches served to the children averages seventy-two percent.

The subjects for this study were 90 randomly selected kindergarten students at JCPS. Simple random selection using a table of random numbers was made from three numbered lists of names: those who attended preschool (n=30) at JCPS during the 2001-2002 school year, those who did not attend preschool (n=30) at JCPS and those who attended a preschool (n=30) other than JCPS.

Instrumentation

The instrument used to test both the control and experimental group of students was the *Georgia Kindergarten Assessment Program-Revised* (GKAP, 1998). The GKAP-R is a state mandated test for all kindergarten students. It is a performance-based assessment designed to mark student progress during the kindergarten year and to assess entering first grade readiness skills. The kindergarten teachers administered the instrument. Scores were reported on a class list. At the first of the school year, only five of the 14 Literacy Activities, four of the 14 Mathematics Activities, and one of the four Social/Emotional Activities were administered as required by the state.

Procedures

Testing began on August 13, 2002, and ended on August 24, 2002. The nine kindergarten teachers conducted the testing. The classroom teacher individually tested students. Permission to use their scores was obtained in writing from the principal of Jasper County Primary School. A letter to the preschool director was written to gain access to preschool attendance records during the 2001-2002 school year. Since individual students' scores were not identified, parental permission to use student scores was not necessary.

A list of all kindergarten students enrolled at Jasper County Primary School at the beginning of the 2002-2003 school year was obtained from enrollment reports. Out of the group of kindergarten students, three lists were compiled. The first list contained students who attended preschool at JCPS., the second list contained students who did not attend any preschool, and the third list contained students who attended a preschool other than JCPS. Simple random selection was done for each group separately using a table of random numbers and chronological age. A table of random numbers was used to select thirty students for each group.

Design and Data Analysis

The design of this study was causal-comparative which is a design that determines causes for existing differences in groups. An *Analysis of Variance* (ANOVA) was done using the *Statistical Package for the Social Sciences* (SPSS) to compare the beginning (August) scores for the children on the three variables (literacy,

math, and social/emotional) and the overall score. An *Analysis of Covariance* (ANOVA) was used on the May scores with the August scores as the covariate.

Results

It was expected that children who had attended preschool at JCPS would have higher GKAP scores at both the beginning and the end of the kindergarten year. The control group had a mean of 156 ($SD = 15$) and the experimental group had a mean of 151 ($SD = 10$). An independent *t-test* for independent sample was used to determine the *t*-value between the two groups [$t(44) = 1.46, p = .15$] using an unequal variance assumption because Levine's test was found to be significant at $p = .04$. The control group was much more heterogeneous than the experimental group, but the five points difference between the two groups was not statistically significant.

At the end of the kindergarten year, the GKAP was given again and the control group had a mean of 182 ($SD = 18$) and the experimental group had a mean of 188 ($SD = 11$). *Analysis of Covariance* was used with the post-test scores to test for the difference between the groups using the pretest as the covariate in order to eliminate preexisting differences in the children. The *ANCOVA* results were statistically significant. The source of variation was $3.5434E+04$. The d.f. was 89. The mean squares were 405.9 and the *F* was 0.1508. The probability of this result, assuming the null hypothesis, is 0.860.

Discussion

The null hypothesis stated that there would be no significant difference in GKAP-R scores of kindergarten students who attended a preschool program and kindergarten students who did not attend a preschool program. The results of this study support the original hypothesis: kindergarten students who participated in a preschool program did not achieve significantly higher GKAP-R scores than kindergarten students who did not attend a preschool program. There was no difference when pretesting was done at the beginning of the year, but the gains during kindergarten were higher for the experimental group who had attended preschool at JCPS.

It was suggested by this study that the small sample size could have limited the extrapolation of the data. Other threats to

validity could have included the fact that some of the control group participants attended private preschools. Another threat was that testing could not have been sensitive enough since breakdowns were not available.

My research was important because the results allowed administrators, teachers, and parents to recognize the fact that there was no significant effect of attending preschool on the first grade readiness skills of kindergarten students at the end of the kindergarten year.

After conducting this study, I do not feel that it is always beneficial for children to attend pre-k programs. However, pre-k programs can be very helpful to the children who do not receive a great deal of parent involvement at home.

In my opinion, one of the most important factors in determining a child's success in school depends greatly on parent involvement.

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Table 1

The Effects of Preschool Attendance On the First Grade Readiness Skills of Kindergarten Students

Group	N	Pre-test		Post-test	
		M	SD	M	SD
*Experimental	30	150.5333	9.5258	187.8667	11.4973
Control	30	155.9667	18.0373	181.6000	19.2776

ANOVA: Results

The results of an ANOVA statistical test performed at 15:26 on 18-MAY-2003

Source of Variation	Sum of Squares	d.f.	Mean	F
between	122.4	2	61.21	0.1508
error	3.5312E+04	87	405.9	
total	3.5434E+04	89		

The probability of this result, assuming the null hypothesis is 0.860

The Effect of Preschool Attendance on the First Grade Readiness Skills of Kindergarten Students

Group A: Number of items= 30

134. 140. 143. 143. 148. 151. 154. 157. 157. 160. 161. 163. 163. 164.
164. 166. 167. 167. 173. 173. 174. 174. 175. 181. 189. 198. 200. 200.
200. 200.

Mean = 168.

95% confidence interval for Mean: 160.7 thru 175.3

Standard Deviation = 18.8

Hi = 200. Low = 134.

Median = 165.

Average Absolute Deviation from Median = 14.5

Group B: Number of items= 30

134. 137. 140. 143. 143. 143. 147. 150. 154. 156. 159. 160. 162. 162.
163. 163. 165. 167. 172. 173. 173. 174. 174. 181. 197. 197. 198. 200.
200. 200.

Mean = 166.

95% confidence interval for Mean: 158.9 thru 173.5

Standard Deviation = 20.4

Hi = 200. Low = 134.

Median = 163.

Average Absolute Deviation from Median = 16.0

Group C: Number of items= 30

134. 137. 137. 140. 143. 143. 143. 147. 150. 154. 156. 159. 160. 162.
162. 163. 163. 165. 167. 172. 173. 174. 174. 181. 197. 198. 200. 200.
200. 200.

Mean = 165.

95% confidence interval for Mean: 157.8 thru 172.4

Standard Deviation = 21.2

Hi = 200. Low = 134.

Median = 162.

Average Absolute Deviation from Median = 16.7