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ABSTRACT

This longitudinal study compared academic performance of Head Start and public school prekindergarten graduates at four educational transitions: (1) kindergarten; (2) first grade; (3) third grade; and (4) fourth and sixth grades. Participating in this study were students in an urban, minority school system providing both Head Start and prekindergarten programs. The average sample size across six grade levels was 180. The sample was 53 percent female and 94 percent African American. Findings revealed no group differences in grade retention or special education placement. In preschool, Head Start children's skill mastery was similar to that of prekindergarten peers except for lower mastery of number skills and pre-reading skills. In kindergarten, Head Start graduates were comparable to prekindergarten graduates except for lower physical skills. Notable differences appeared in first grade with Head Start graduates receiving lower grades in all subject areas. In third grade, Head Start graduates' GPA remained lower than prekindergarten peers, and language difficulties were evident in lower achievement test scores. In fourth and fifth grades, Head Start graduates' academic performance was comparable to prekindergarten graduates except for handwriting. No significant differences were noted in sixth grade achievement test scores. Head Start graduates were successful in all major educational transitions except the transition to first grade. Head Start graduates were more successful than prekindergarten peers in making the transition to fourth grade, showing notable increases in GPA and mathematics, reading, language, and handwriting. Success of Head Start's graduates was explained by exposure to a developmentally appropriate intervention and parental involvement. (Contains 13 references.) (KB)

Educational Transitions in Early Childhood, Middle Childhood, and Early Adolescence: Head Start vs. Public School Pre-Kindergarten Graduates

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Abstract

Academic performance of Head Start and Pre-K graduates was compared at four educational transitions. No differences in grade retention or special education placement were found. In preschool, Head Start children's mastery of skills was comparable to that of Pre-K peers in all areas except lower number and pre-reading skills. In kindergarten, Head Start graduates were comparable to Pre-K graduates in all areas except lower physical skills. However, notable differences appeared in first grade with Head Start graduates receiving lower grades in all subject areas. In third grade, GPA of Head Start graduates remained lower than Pre-K peers, and difficulty with language was evident in lower CTBS achievement test scores. In fourth and sixth grades, Head Start graduates' academic performance was comparable to that of Pre-K graduates in all areas except handwriting. No significant differences between Head Start and Pre-K graduates were noted in sixth grade CTBS scores. Head Start graduates were successful in all major educational transitions except for transition to first grade. Although in the kindergarten transition, Head Start graduates made more gains in number skills, they began to fall behind peers in first grade. However, by the end of early childhood, Head Start graduates were more successful than Pre-K peers in making the difficult transition to fourth grade. They showed notable increases in GPA and mathematics, reading, language, and handwriting. In transition from fourth to sixth grade, Head Start graduates' academic gains were comparable to those of Pre-K peers in all areas except handwriting. Comparison of third and sixth grade CTBS scores indicated Head Start graduates improved earlier deficiencies. Although Head Start does not bring children up to the level of more affluent peers who attended Pre-K, after first grade, language was their only notable remaining deficit. Although Head Start graduates had difficulty with the first grade transition to formalized learning, they were successful in all subsequent transitions. Success of this study's Head Start graduates may be explained by their exposure to a more developmentally appropriate educational intervention and higher degree of parent involvement. When Head Start is done well, it can have an extended influence on its graduates' academic achievement.

Educational Transitions in Early Childhood, Middle Childhood, and Early Adolescence: Head Start vs. Public School Pre-Kindergarten Graduates

In recent years Head Start's effectiveness in promoting school readiness and long-term outcomes has been challenged (e.g., Currie & Thomas, 1995; Holden, 1990; McKey et al., 1985), because significant immediate gains are apparently not maintained as children progress in school. Early gains often become invisible by third grade, especially for African American children. Head Start supporters have questioned such conclusions due to methodological inadequacies (i.e., group selection biases across studies; Gamble & Zigler, 1989) and failure to include findings from similar programs for low-income children in meta-analytic studies (Schweinhart & Weikart, 1986). Based on longitudinal studies, the U. S. General Accounting Office was unable to determine whether Head Start's benefits are lasting (General Accounting Office, 1997). Assessing the long-term impact of Head Start on educational achievement is complex because effectiveness varies with type of intervention, as well as duration and age when intervention occurred (Cole & Washington, 1986). Lee and Loeb (1995) believed early benefits are undermined if Head Start graduates are subsequently exposed to lower quality schooling. In contrast, a quality suburban school system found Head Start had a positive impact on educational achievement in grades 4, 8, and 12 (Hebbeler, 1985).

This paper presents findings of on-going longitudinal research in an urban, minority school system that provides both Head Start and pre-kindergarten (Pre-K) programs for young children in our nation's capital. Both programs serve children from predominantly low-income African American families, with Head Start families being among the very poorest. The academic performance of these urban Head Start graduates was compared with that of Pre-K graduates at four key educational transitions, including two transitional points when any initial advantage of Head Start participation may be expected to fade or even disappear.

Method

The sample of children reported at each grade level varies because (a) most middle class

Washington, DC families withdraw children from the public system following Pre-K or kindergarten, and (b) close proximity of Maryland and Virginia results in high mobility as families leave and re-enter Washington, DC schools. Samples used in analysis of change across transitional periods were somewhat reduced because only children with complete data for grades before and after each transition were included. Sample demographics for each grade level are reported in Table 1. The average sample size

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Insert Table 1 about here

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across six grade levels was 180. On the average, this sample was 53% female and 94% African American, with the majority of children (74%) qualifying for subsidized lunch (based on low family income) and 67% living in single parent families. Children in this sample had entered school for the first time as 4-year-olds, with approximately 15% enrolled in the district's Head Start program and 85% in the school district's free, Pre-K program (age and residency are the district's only Pre-K eligibility requirements). Both programs were full-school-day, 5 days a week, center-based programs meeting September through June.

Although no children were retained prior to kindergarten, 31% were retained prior to third grade, 16% were retained following third grade, 10% following fourth grade, and 13% were being retained after sixth grade. In third grade only 1% received special education services, but this number increased to 8% in fourth grade.

Data analyses contrasted academic performance of Head Start and Pre-K children using student report cards (preschool, K, 1st, 3rd, 4th, and 6th grades) and scores on district-wide standardized achievement testing with the Comprehensive Test of Basic Skills (CTBS) in grades 3 and 6.

Results

Chi square analyses of possible demographic differences between Head Start and Pre-K children indicated that, at all grade levels, Head Start children were significantly poorer ($p < .01$). In the early

grades, Head Start children were also more likely to live in single parent families ($p < .01$) than Pre-K peers. Prior to first grade, the Head Start sample included more African American children ($p \leq .06$).

No significant differences in grade retention rates were found between Head Start and Pre-K graduates prior to third grade ($p = .20$), or following third ($p = .36$), fourth ($p = .90$) or sixth ($p = .79$) grades. Special education placement of Head Start vs. Pre-K graduates did not differ in either third ($p = .56$) or fourth ($p = .75$) grades.

Pre-primary grades. In preschool, Head Start children's mastery of early basic skills was comparable to that of Pre-K peers in all areas except for lower mastery of number skills (2.13 vs. 2.49), $F(1, 286) = 21.45$, $p < .001$, and somewhat lower pre-reading skills (2.61 vs. 2.71), $F(1, 283) = 3.09$, $p = .08$. When a covariate controlling for economic differences was used, differences in pre-reading skills vanished ($p = .30$) but Head Start children remained significantly lower in number skills ($p < .001$). In kindergarten, Head Start graduates were comparable to Pre-K graduates in all areas except for somewhat lower physical skills (2.64 vs. 2.78), $F(1, 188) = 2.88$, $p = .09$. This difference vanished when a covariate controlling for economic differences between children was used ($p = .41$).

Primary grades. Notable differences appeared in first grade. The grade point average (GPA) for Head Start graduates was significantly lower than Pre-K graduates (2.31 vs. 2.77), $F(1, 187) = 6.44$, $p = .01$, and they received lower grades in all subject areas. These differences were significant for first grade reading (1.78 vs. 2.61, $p < .01$), language (2.21 vs. 2.72, $p < .05$), spelling (1.96 vs. 2.80, $p < .01$), social studies (2.38 vs. 2.82, $p < .05$), science (2.38 vs. 2.85, $p < .05$), and art (2.58 vs. 2.92, $p = .06$). Although covariate analyses reduced these differences, Head Start graduates remained lower in first grade reading ($p < .05$) and spelling ($p < .05$), with a trend toward lower language ($p = .07$) and science grades ($p = .08$), as well as overall GPA ($p < .06$).

In third grade, Head Start graduates again had a significantly lower GPA than Pre-K graduates (2.21 vs. 2.60), $F(1, 160) = 4.98$, $p < .05$, with significantly lower language (1.92 vs. 2.55, $p < .01$) and science (2.15 vs. 2.61, $p < .05$) grades. A trend toward lower reading ($p = .06$), spelling ($p = .07$), and

handwriting ($p = .07$) grades was also found for Head Start graduates. However, these differences vanished for all third grade subject areas except language ($p = .08$) when a covariate controlling for economic differences between children was used. Difficulty in language was also evident in CTBS standardized achievement test scores. By third grade, Head Start graduates were significantly lower than Pre-K graduates in overall language skills (42.50 vs. 59.95), $F(1, 128) = 9.81$, $p < .01$, with difficulties noted in all CTBS language subtests: Spelling (48.78 vs. 57.40, $p = .08$), Mechanics (50.44 vs. 62.34, $p < .05$), and Expression (38.11 vs. 55.63, $p < .01$). With the exception of spelling ($p = .18$), these differences did not vanish with covariate analysis.

Upper elementary and middle school grades. In fourth and sixth grades, Head Start graduates' academic performance was comparable to that of Pre-K graduates in all areas except poorer handwriting in sixth grade (2.00 vs. 2.73, $p < .01$) and somewhat lower grades in art (2.64 vs. 3.13, $p = .06$). These few differences did not vanish with covariate analysis. No significant differences between Head Start and Pre-K graduates were noted in 6th grade CTBS achievement test scores.

Transitions. Repeated measures MANOVA (intervention x year interactions) was used to analyze change in grades following a major educational transition. As shown in Figures 1 - 4, Head Start

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. Insert Figures 1, 2, 3, and 4 about here

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graduates were fairly successful in all major educational transitions except for the transition from kindergarten to first grade. In the transition to kindergarten, Head Start graduates made significantly more gains than Pre-K peers in number skills, $F(1, 168) = 7.87$, $p < .01$. Although they did not loose ground in first grade mathematics, Head Start graduates began to fall behind peers in first grade, with notable decreases found in GPA ($p = .05$), as well as reading ($p < .09$), language ($p = .06$), and science ($p < .05$). These few differences did not vanish with covariate analysis.

The transition from third (early childhood) to fourth grade (middle childhood) is cognitively

difficult because of increased expectations for independent thought and mastery of more difficult skills and ideas. Head Start graduates were generally more successful than Pre-K graduates in making this difficult transition. They showed notable increases in GPA, F (1, 137) = 4.31, $p < .05$, as well as gains in fourth grade math, F (1, 135) = 3.88, $p = .05$, reading, F (1, 135) = 3.23, $p = .08$, language, F (1, 136) = 3.21, $p < .08$, and handwriting, F (1, 136) = 3.78, $p = .05$. These differences did not vanish with covariate analysis.

In making the transition from fourth (middle childhood) to sixth grade (early adolescence), Head Start graduates' academic gains were comparable to those of Pre-K graduates in all areas except handwriting (which appears to have peaked for Head Start graduates in fourth grade). A comparison of third and sixth grade CTBS standardized achievement scores indicated gains had been made in earlier areas of deficiency. Although Head Start graduates remained somewhat behind peers in language ($p < .13$), their total language scores increased 21% from third to sixth grade, while CTBS language scores of Pre-K graduates declined 20%, F (1, 88) = 2.58, $p = .11$. Of the language subtests, expression showed the most change since third grade, with Head Start students increasing 28% and Pre-K graduates declining 17%, F (1, 88) = 2.77, $p = .10$. Head Start graduates also made notable gains in CTBS math computation since third grade (38% increase vs. 21% Pre-K decrease, $p < .05$). Although both groups declined significantly in CTBS science achievement by sixth grade, Head Start graduates only showed a 23% drop compared to the 60% decrease in scores of Pre-K graduates ($p < .09$).

Discussion

Does Head Start make a difference in later academic performance? It depends. Clearly, Head Start does not always bring children up to the level of generally more affluent peers who attended Pre-K. However, when economic differences between children were statistically controlled, Head Start graduates did well academically in all but the first grade. Early difficulty with mathematics did not hinder Head Start graduates after making substantial gains during their kindergarten year. The only difficulty that remained of notable concern after first grade was language. This was not surprising given

Hart and Risley's (1995) findings that, by age 4, impoverished children are exposed to 13 million fewer words than are children raised in families of professionals.

After having initial difficulty in making the first grade transition to formalized learning, Head Start graduates were successful in making the next major educational transition to fourth grade during middle childhood. They were generally more successful than Pre-K graduates in making this difficult transition and in meeting increased academic expectations for independent thinking and learning. They also did well in the early adolescence sixth grade transition to middle or junior high school.

The later success of these Head Start graduates may be partially explained by their exposure to a more developmentally appropriate educational intervention. A child-initiated model of early childhood education was prevalent in this school system's Head Start classrooms. Overly academically directed early learning experiences have been found to have an especially negative impact on achievement and development of children as they make the transition from third to fourth grade (Marcon, 1995). No Head Start classroom in this study was classified as academically directed. Additionally, Head Start parents in this study were significantly more likely than Pre-K parents to be involved in their children's school experience (Marcon, 1999). Such involvement has been positively associated with enhanced child development and greater mastery of basic skills. When Head Start is done well, it can have an extended influence on its graduates' academic achievement.

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Table 1

Sample Demographics

	Preschool	Kindergarten	1st Grade	3rd Grade	4th Grade	6th Grade
Sample Size	288	190	189	162	181	71
# Schools	37	46	55	63	72	40
Age						
Mean	58.6 months	70.6 months	83.3 months	107.7 months	119.8 months	142.8 months
Range	49 to 67	59 to 77	77 to 89	102 to 122	114 to 128	137 to 149
Early Education						
Head Start	13%	14%	13%	16%	16%	20%
Pre-K	87%	86%	87%	84%	84%	80%
Gender						
Girls	51%	53%	51%	55%	51%	59%
Boys	49%	47%	49%	45%	49%	41%
Ethnicity						
African American	91%	92%	94%	96%	96%	98%
Caucasian	8%	8%	6%	3%	3%	2%
Other	1%	0%	0%	1%	1%	0%
Lunch Status						
No Subsidy	30%	30%	29%	26%	24%	15%
Subsidized	70%	70%	71%	74%	76%	85%
Family						
Single Parent	67%	52%	60%	74%	72%	77%
Two Parents	33%	48%	40%	26%	28%	23%

Figure 1

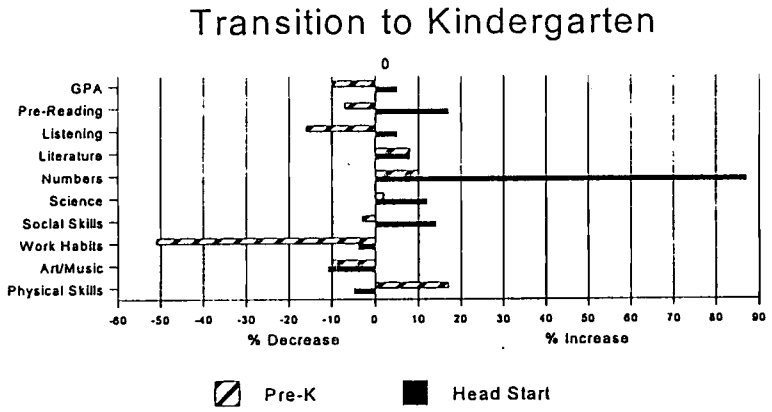


Figure 2

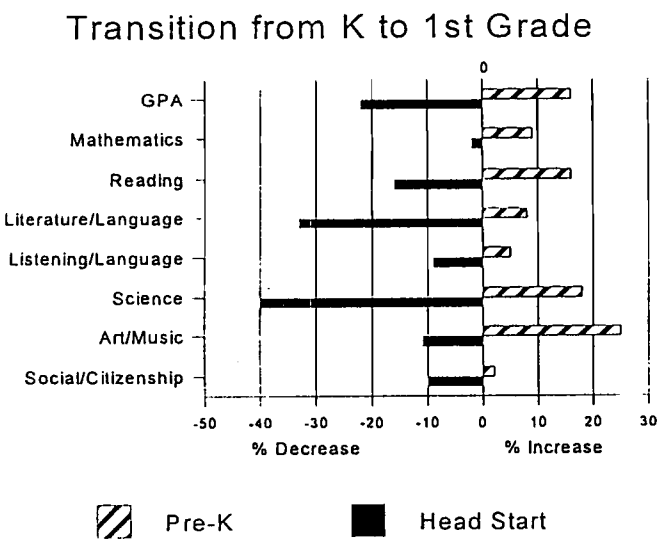


Figure 3

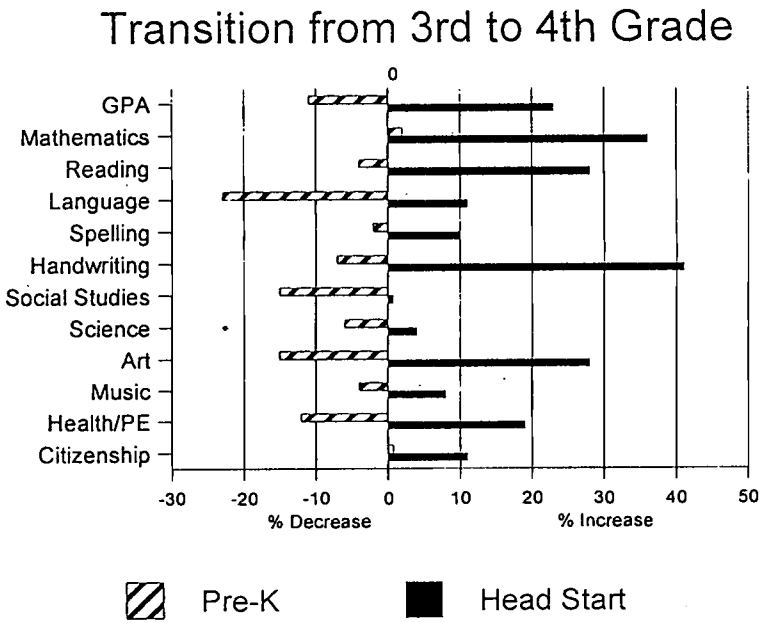
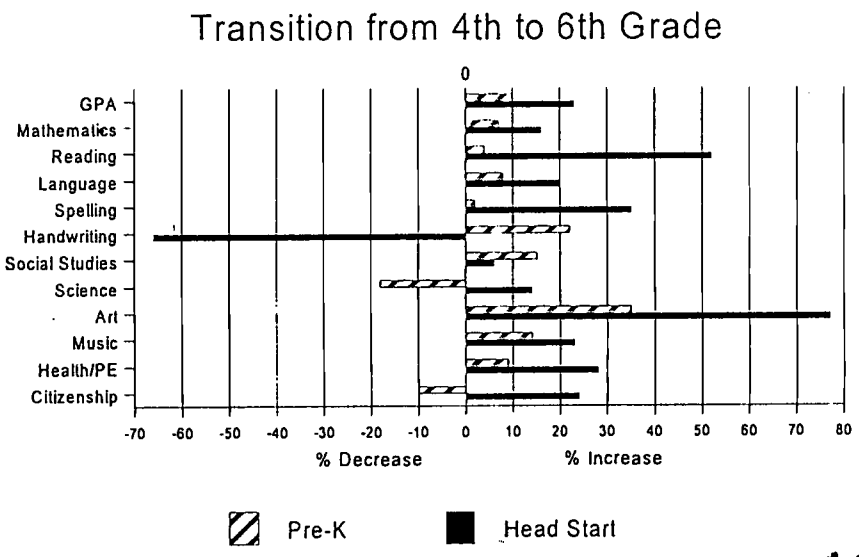


Figure 4



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