

State of Arizona Office of the Auditor General

PERFORMANCE AUDIT

**ANNUAL
EVALUATION**

**AT-RISK
PRESCHOOL
PROGRAM**

**Report to the Arizona Legislature
By Douglas R. Norton
Auditor General**

**December 1997
Report # 97-24**



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OFFICE OF THE
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December 23, 1997

Members of the Arizona Legislature

The Honorable Jane Dee Hull, Governor

The Honorable Lisa Graham Keegan
State Superintendent of Public Education
Department of Education

Transmitted herewith is a report of the Auditor General, An Evaluation of the At-Risk Preschool Program. The evaluation was conducted pursuant to Laws 1994, Ninth S.S., Ch. 3, §30.

This is the third in a series of reports to be issued on the At-Risk Preschool Program. The report addresses the gains children have made as a result of participating in the Program. Most of the children were performing behind their expected age level when they entered the Program, and although most were still behind when they left, the gap had narrowed. Additionally, children who had attended an at-risk preschool had slightly higher achievement scores in kindergarten than similar children who did not attend preschool. Unfortunately, similar to other follow-up studies of children in similar programs, most of the program improvements had disappeared by grade 3. Consistent preschool program quality and follow-up support programs are essential to sustain children's academic gains from the At-Risk Program. However, several conditions exist that allow for variation in program quality and there is no system to assure follow-up support for these children. We conclude that continuing the At-Risk Preschool Program without an adequate system of quality assurance and follow-up support programs does not seem a prudent use of public resources. Recommendations to improve the system of quality assurance are included in this report.

As outlined in its response, the Department of Education agrees with all of the findings and recommendations.

My staff and I will be pleased to discuss or clarify items in the report.

This report will be released to the public on December 26, 1997.

Sincerely,

Douglas R. Norton
Auditor General

Enclosure

SUMMARY

The Office of the Auditor General has completed the third annual program evaluation of the At-Risk Preschool Program (Program) administered by the Arizona Department of Education (ADE). The evaluation was conducted pursuant to Laws 1994, Ninth S.S., Ch. 2, §30.

Arizona's At-Risk Preschool Program provides preschool services to four-year-old children from low-income families. These children are considered at risk of failing in school. The Program was designed as a comprehensive approach to enhance children's developmental and educational opportunities and to encourage community responsiveness to family needs.

One of the Program's main goals is to ensure that children enter kindergarten ready to learn. Experts agree that children's early educational experiences play a major role in determining their success in elementary school. Children who have had a preschool experience such as Head Start enter school with a developmental advantage over their non-Head Start peers.

For the 1996-97 school year, an estimated 4,730 Arizona children participated in at-risk preschool programs in 90 school districts, in one of three major settings: public, private, or Head Start classrooms.

At-Risk Preschool Children Show Moderate Improvement During Their Time in the Program (See pages 9 through 12)

The At-Risk Preschool Program moderately improved the verbal ability of children who participated during the 1995-96 and 1996-97 school years. Most of these children were performing behind their expected age level when they entered the Program, and although most were still behind when they left, the gap had narrowed. Additionally, according to teachers' evaluations, program children improved in the following measures: emergent literacy (children can express themselves fluently with a variety of words and can understand an even larger set of words used in conversation and stories), social and nutritional levels, and health and dental status.

At-Risk Preschoolers Are Marginally Better Prepared in Kindergarten Than Similar Students Who Did Not Attend Preschool

(See pages 13 through 16)

Children who attended the At-Risk Preschool Program prior to attending kindergarten in school year 1996-97 had slightly higher achievement scores in kindergarten than similar children who did not attend preschool. Program participants were more likely to be performing at or above their chronological age level in kindergarten and were less likely to be below it than were at-risk children who did not participate. However, the differences were modest.

The program participants performed somewhat better than their at-risk counterparts in five of the seven outcome measures: vocabulary, emergent literacy, problem-solving skills, gross motor skills, and fine motor skills. However, the Program had weak effects on social skills and parental involvement.

Program Effects Fade over Time without Follow-Up Programs

(See pages 17 through 21)

Although the At-Risk Preschool Program has some positive effects on participant performance, these effects disappear by grade 3. While the analysis is limited due to small numbers of districts who administer standardized tests in grades 1 and 2 and who consistently submitted pilot program data, the data shows At-Risk Preschool children experience what is known as the “fade-out” effect. This effect occurs if there is variation in program quality across sites and if successive grades fail to build upon the academic foundation developed in preschool. Consistent preschool program quality and follow-up support programs in kindergarten through grade 3 are essential to sustain children’s academic gains resulting from at-risk preschool. However, the quality of preschool programs is not consistent and follow-up programs are not in place. It should be noted that this analysis is limited due to small numbers of districts who administer standardized tests in grades 1 and 2 and who consistently submitted pilot program data.

Currently, variation in quality across preschool sites is evident. In addition, follow-up programs for At-Risk Preschool children have been limited by recent changes to the Early Childhood State Block Grant, though the extent to which follow-up programs have been limited cannot be fully determined.

Private Sites Continue to Lag Behind Public Sites in Quality

(See pages 23 through 32)

This third-year evaluation showed the same pattern that had been evident previously: At-Risk Preschool programs at private sites lagged behind programs at public and Head Start sites in incorporating the elements of a quality program into their operations. The evaluation, based on visits to a total of 102 sites, showed that although private sites provided slightly better services than last year, they were still weak in achieving critical program goals. Several conditions exist that allow for variation in program quality, such as diverse childcare regulations and lack of adequate agency monitoring.

Most public and Head Start sites met the majority of the goals specified by the Early Childhood Advisory Council. These preschools use developmentally appropriate practices, meet staff qualifications, provide staff development, offer linguistic and cultural integration, involve parents, comply with health care requirements, follow nutritional guidelines, and are involved in the community. In contrast, private sites were weak in achieving the goals that were most critical for a quality program. Although these deficiencies were identified in last year's report, they persisted as weaknesses.

Statutory Annual Evaluation Components

(See pages 33 through 40)

Laws 1994, Ninth S.S., Ch. 2, §30 requires this Office to make recommendations regarding continuation of the Program. The issue of whether to fund the At-Risk Preschool Program has already been somewhat influenced by the creation of state block granting, which has eliminated specific funding for the Program. Continuing the Program without an adequate system of quality assurance and follow-up support programs does not seem a prudent use of public resources.

Regarding future evaluations, three years' worth of evaluations have provided a clear indication of what the Program is accomplishing, and the recommendations in this report have addressed the areas that need to be strengthened if the Program is to be made more effective. As a result, the Auditor General's Office believes that evaluation resources would be better directed at other state programs and that continued annual evaluations of the at-risk programs should not be performed. Therefore, the Office recommends that the Legislature remove the statutory requirement for annual evaluations of the At-Risk Program.

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INTRODUCTION AND BACKGROUND

The Office of the Auditor General has completed the third annual program evaluation of the At-Risk Preschool Expansion Program (Program) administered by the Arizona Department of Education (ADE). The evaluation was conducted pursuant to Laws 1994, Ninth S.S., Ch. 2, §30.

Background

The Program was designed as a comprehensive approach to enhance children's developmental and educational opportunities and to encourage community responsiveness to family needs. It is directed at improving the availability and quality of services in the areas of education, health, parental involvement, and social services to indigent children and their families.

One of the Program's main goals was to ensure that children enter kindergarten ready to learn. Experts agree that children's early educational experiences prior to entering school play a major role in determining their success in elementary school. Literature shows that children who have had a preschool experience such as Head Start enter school with a developmental advantage over their non-Head Start peers.

Arizona At-Risk Preschool Legislation and Appropriations

Since 1990, when Arizona officially began supporting at-risk preschool programs, the Legislature has statutorily altered the Program several times. Specifically:

- Laws 1990, Ch. 345 established a pilot program that provided preschool services. Ten at-risk preschools began operating during the 1990-91 school year. The following year, 23 preschools were added.
- Laws 1994, Ninth S.S., Ch. 2, expanded the At-Risk Preschool Pilot Program and increased appropriations. The 1994 laws allowed private day care centers, federally funded programs, and private schools to provide direct services to at-risk four-year-olds.
- Laws 1995, First S.S., Ch. 4, placed the At-Risk Preschool Program appropriation into a block grant with four other state-funded programs: full-day kindergarten, kindergar-

ten to grade 3 at-risk, dropout prevention, and gifted support. The 1995 law also made some administrative changes to the Program.

- Laws 1996, Fifth S.S., Ch. 1, §8 placed the At-Risk Preschool Program into an early childhood block grant that included all-day kindergarten and kindergarten to grade 3 at-risk.
- Laws 1997, Ch. 231, §33 placed funding that was potentially available for the Program into an Early Childhood State Block Grant. Districts are able to disburse state block grant monies to at-risk preschool, all-day kindergarten, or kindergarten through grade 3 support programs.

The program changes have been accompanied by appropriation changes. Figure 1 (see page 3), illustrates how the appropriations for the At-Risk Preschool Program, and the other programs that are part of the Early Childhood State Block Grant, have changed over time.

For school year 1996-97, Early Childhood State Block Grant appropriations totaled \$14.5 million. Of the total Early Childhood State Block Grant monies, districts dedicated \$7.7 million to all-day kindergarten and kindergarten through grade 3 support and \$6.8 million to the At-Risk Preschool Program. In addition, districts were able to use \$5 million from the At-Risk Preschool Continuation Fund authorized by the 1994 Laws to augment the block grant funds.

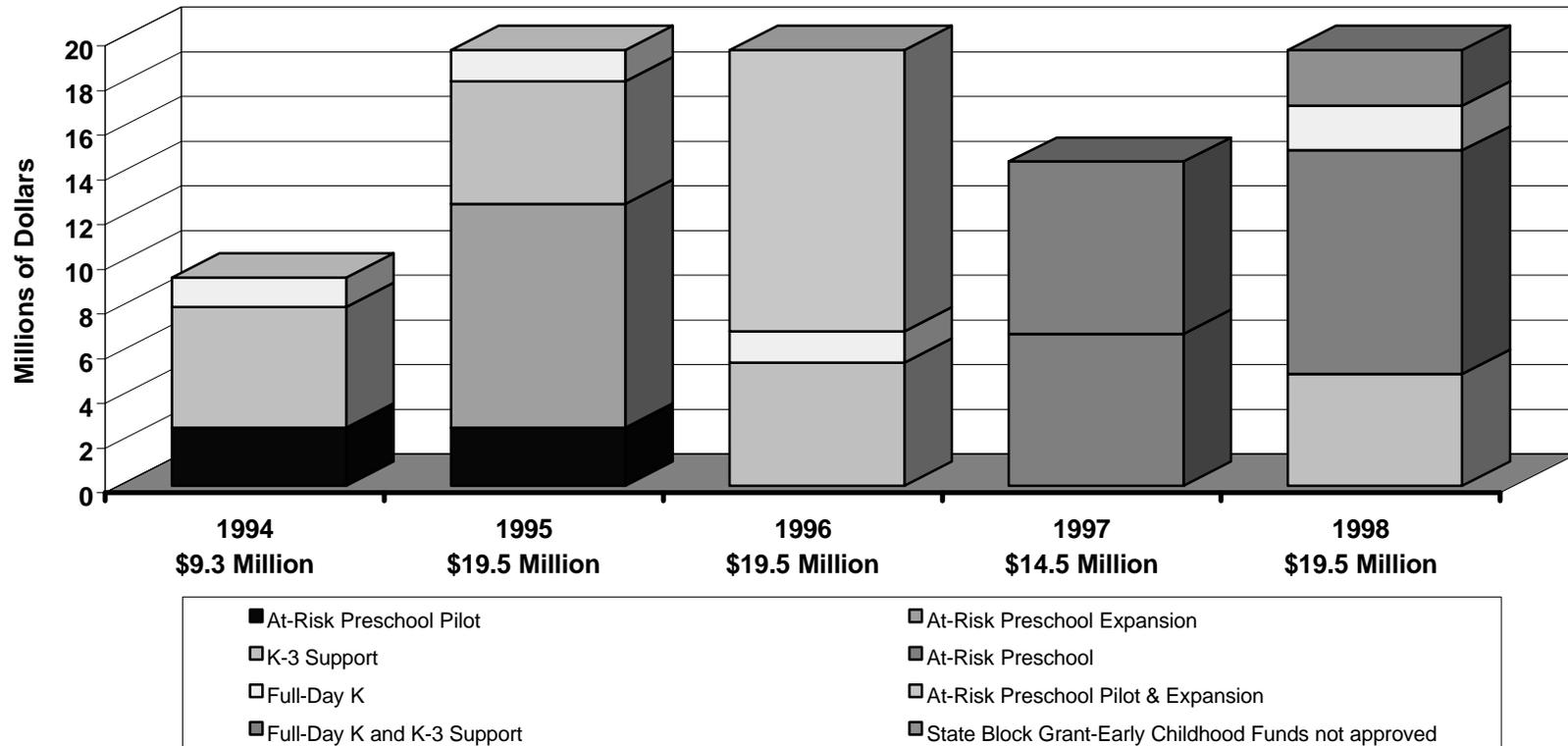
Allocation Process for 1996-97 School Year

ADE allocated program monies to local school districts for school year 1995-96 based upon an estimated number of age- and residence-eligible children as required by the legislation, and at-risk eligible as defined by a family income that meets low-income eligibility guidelines. ADE used the district estimates to compute a maximum grant amount for each district. The formula was based on the estimated number of eligible children in each district, the total number of eligible children in the State, and the total amount of monies available for distribution across the State. All allocations go to the school districts who then can provide preschool themselves or contract with private providers or Head Start.

As a result of this allocation process, some school districts received allocations that were too small to operate quality preschools. Several of the more impoverished areas failed to secure adequate funding. ADE attempted to correct this situation for the 1996-97 school year by distributing the monies differently. ADE divided the \$14.5 million in half. Half of the money was allocated to all school districts that had a kindergarten through grade 3

Figure 1

Appropriation for At-Risk Preschool
and Other Early Childhood Programs
Years Ended or Ending June 30, 1994 through 1998



Source: Auditor General staff analysis of Joint Legislative Budget Committee reports and an Auditor General school district survey.

average daily membership count. There was a minimum grant amount of \$15,000 per district, and the other half of the \$14.5 million was allocated to school districts based on a kindergarten through grade 3 “free lunch eligible” count.

ADE provided a program application package to each of the 198 districts eligible to receive an allocation. Districts were required to complete the application package and return it to ADE by June 19, 1996, in order to receive an allocation. Ninety districts received money to operate an at-risk preschool program.

Program Types

For school year 1996-1997, an estimated 4,700 Arizona children participated in at-risk preschool programs. The 317 at-risk preschool classrooms fall into one of three categories: 1) 245 public, 2) 45 private, and 3) 27 Head Start classes.

Evaluation Scope and Methodology

A multi-method approach was used in collecting and analyzing data for the evaluation. Methods included: 1) structured program observations, 2) survey research, 3) interviews, 4) document review, and 5) collection and analysis of data on children who attended at-risk preschool programs. Relevant meetings, such as those of the Early Childhood Advisory Committee and the At-Risk Preschool Consortium, were also attended.

- **Program observations**—This was the second year of a two-year plan to observe the quality of preschool programs. In total, 102 preschools from all 15 counties in the State were observed. When possible, observations were made of all three classroom types (public, private, and Head Start) within a school district, allowing observations of diverse types of implementation within and between districts.

The 102 structured observations conducted during both school years included large and small districts, urban and rural locations, and geographically and culturally diverse areas. Of the total number of at-risk funded classrooms in the State, 29, or 13 percent of the public, 10, or 20 percent of the private, and 14, or 31 percent of all Head Start sites were observed during the 1996-97 school year.

- **Survey research**—A survey was developed for collecting budget and other information. The survey focused on Early Childhood Block Grant funds, At-Risk Preschool Continuation funds, number and types of classrooms, and number of preschool students. All 90 districts operating an At-Risk Preschool Program responded.

- **Interviews**—Preschool program coordinators, instructors, and teaching assistants were interviewed as part of site visits and survey research.
- **Document review**—ADE and preschool site documents and files were analyzed. For example, program and budget applications from ADE were collected and examined. Children’s immunization records, eligibility documents, health records, and assessments were reviewed during each site visit.
- **Collection of data on separate groups of children**—Information was collected on the Program’s 1) immediate effects, 2) short-term effects, and 3) longer (4-year) effects. True long-term effects (i.e., graduation rates, number of welfare recipients, etc.) could not be determined, because participants would need to be tracked through high school and beyond, and the Program had not been in existence long enough for such measurements.
- **Immediate effects**—In order to examine student progress as an immediate result of At-Risk Preschool, data was collected on children when they entered and exited the Program. Basic background and performance data was collected on children during school years 1995-96 and 1996-97. Data from 75 (83 percent) of the 90 districts that operated programs in 1996-97 was available for analysis.
- **Short-term effects**—To examine the Program’s short-term effects, former participants were evaluated while they were in kindergarten. Approximately 1,000 children were evaluated by assessing skills in areas that are critical for school success, such as vocabulary, social and behavioral, gross and fine motor, emergent literacy, and problem solving. Parental involvement was also examined. Data was also collected on 330 kindergarten children who did not attend any type of preschool. This comparison group was evaluated using the same criteria used for the group that had participated in the Program.
- **Four-year effects**—To assess student performance over time, data was collected on former program participants who attended at-risk preschool before the 1995-96 school year. Schools that operated pilot programs from academic years 1990-91 through 1994-95 were requested to report academic information on the children, commencing from the time they entered the At-Risk Preschool Program. Eleven of the 27 districts that operated pilot programs complied with the request. Districts that complied completed follow-up information on the children for each year through the 1994-95 school year. Data reported include standardized test scores, placement in special education and in other special programs, and school attendance. Results from the State’s administration of the Stanford Achievement Test (Stanford) for over 500 children now in grades 3 through 4 were added to the data. Standardized test data was also collected on a comparison group of more than 600 children who had similar at-risk characteristics but had not attended at-risk preschool.

1997 Report and Follow-up

As part of the current evaluation, concerns previously identified in the second-year report (Report No. 97-2) were reviewed. These concerns were in three main areas: student performance, quality of programs, and program monitoring.

- **Early results show minimal student gains**—The second evaluation report documented that children who attended an at-risk preschool from 1991 through 1994 showed minimal gains over a comparison group of children in elementary school. Data collected on these children and on a demographically similar comparison group of children who attended the same schools, but were not enrolled in the At-Risk Preschool Program, showed that both groups scored below the national average on standardized assessments. Although modest differences existed in academic performance between the groups in grade 2, the differences disappeared by grade 3.

Follow-up: This year's results are consistent with last year's. The findings indicate that both the at-risk preschool and comparison groups are performing below national averages and there are no substantial academic differences between the groups by grade 3. For a more complete description, see Finding III, pages 17 through 21.

- **Implementation meets state goals, yet private sites lag behind public in quality**—The second-year evaluation of the At-Risk Preschool Program found that private sites were not as successful as public and Head Start sites in meeting the goals most essential to a quality program. Crucial goals not met by private sites included the use of developmentally appropriate practices and curriculum, linguistic and cultural integration, providing social services, child assessment, and self-evaluation. Additionally, private sites lagged behind public and Head Start sites in meeting other goals, such as child nutrition and community involvement.

Follow-up: The third-year evaluation showed the same pattern revealed previously: At-Risk Preschool programs held at private sites lagged behind public and Head Start programs in most of the 12 goal areas. Private sites again failed to meet the most critical goals identified in last year's report. For a more complete depiction of this year's implementation of the At-Risk Preschool Program, see Finding IV, pages 23 through 32.

- **Limited review and monitoring affects program quality**—The January 1997 report found that ADE performed minimal monitoring to ensure that schools effectively implemented the Program. ADE visited only 18 out of the 90 districts operating At-Risk preschools and wrote only 12 reports on the 250 preschool classrooms operating during the 1995-96 school year. ADE's limited monitoring was attributed to its philosophy that school districts were accountable for program quality, including classes operated

by private contractors. This philosophy also explained why an inadequate number of staff were assigned to monitor the Program.

Follow-up: Although ADE increased its monitoring efforts in school year 1996-97, it failed to adequately evaluate and monitor the quality of private sites. ADE staff visited 52 at-risk preschool classrooms in 39 districts, an increase from only 18 districts the previous year. However, only 5 private sites were examined. See Finding IV, pages 23 through 32, for a more complete description of ADE's monitoring performance.

Acknowledgment

The Auditor General and staff express appreciation to the State Superintendent of Public Instruction, and the management and staff of the Arizona Department of Education, for their cooperation and assistance throughout the evaluation. We also wish to thank the many preschool program coordinators, teachers, and assistants who welcomed us into their classes during the school year. The district staff who collected and submitted data on thousands of preschool children should be acknowledged for their contributions to this evaluation. Finally, ADE's Division of Research and Evaluation provided invaluable assistance in the collection and management of student data.

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FINDING I

AT-RISK PRESCHOOL CHILDREN SHOW MODERATE IMPROVEMENT DURING THEIR TIME IN THE PROGRAM

The At-Risk Preschool Program moderately improved the verbal ability of children who participated during the 1995-96 and 1996-97 school years. Most of these children were performing behind their expected age level when they entered the Program, and while most were still behind their age level when they left, the gap had narrowed. Additionally, according to teachers' evaluations, children significantly improved in the following critical measures: emergent literacy, social and nutritional levels, and health and dental status.

Background

To determine how the At-Risk Preschool Program impacted children it served during the 1995-96 and 1996-97 school years, data measuring the skills of children entering and exiting the Program was collected. The following were selected as program measures to be analyzed: pre- and posttest scores on the Peabody Picture Vocabulary Test (PPVT), the Program's main standardized test; and teachers' evaluation of additional skills necessary for success in school.

The PPVT was selected as the primary standardized test outcome for the evaluation because it measures a subject's receptive (hearing) vocabulary and provides an estimate of verbal ability, a good index of school success. However, because no test is a perfect predictor, teachers evaluated the performance level of children in additional crucial areas at the beginning and end of the Program. Teachers assessed children's social and emotional levels and emergent literacy by rating each child as below, at, or above age level. Nutrition, health, and dental status were assessed as poor, fair, good, or excellent. For a more detailed discussion of data collection procedures, see Appendix A, pages a-i through a-vi.

Student Performance on Standardized Tests

Measured by their PPVT scores, children in the At-Risk Preschool Program made moderate gains from pre- to posttesting—that is, from the time they entered the Program until the time they left. Children still performed behind their expected age level when they left

the Program, but they were not as far behind. Their progress can be measured in two ways: expected and actual performance and percentile scores.

Expected and actual performance—Although children’s actual performance was behind their “expected” or chronological age at the start of At-Risk Preschool, the gap had narrowed by the end of the Program. For example, in school year 1996-97, children were three months closer to their expected age score by the time of the posttest than they were when the pretest was administered. See Table 1 for the difference between expected and actual performance.

Table 1
At-Risk Preschool Program
Difference Between Expected and Actual Performance
Pre- and Posttest Comparison
Years Ended June 30, 1996 and 1997

School Year	Months Behind		Improvements Pretest to Posttest	Number of Children
	Expected Performance Pretest	Posttest		
1995-96	10.75	8.48	2.27	817
1996-97	10.32	7.11	3.21	2,184

Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

Percentile scores—A percentile score shows a student’s rank in a standard group of 100 persons on whom the test was developed. Percentile ranks range from a low of 1 to a high of 99, with 50 representing average performance. A percentile rank of 25 means that 75 percent of the group would perform better.

Although student scores remained below average, the overall percentile rank increased by about 10 points during the year they were in the Program. For example, scores went from the 13th- to the 23rd-percentile during the 1995-96 school year, and from the 9th- to the 20th-percentile in 1996-97. See Table 2, page 11, for percentile ranks.

Table 2

**At-Risk Preschool Program
Pre- and Posttest Scores
Average Percentile Rank
Years Ended June 30, 1996 and 1997**

	1996			1997		
	Pretest	Posttest	N	Pretest	Posttest	N
All children	13	23	805	9	20	2,443
Anglo children	25	37	242	19	34	632
Minority children	10	19	563	7	18	1,811

N = Number of children.

Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

Additional Outcomes As Measured by Teachers' Evaluations

According to teachers' evaluations, children who participated in the Program improved in all four of the additional areas measured. Emergent literacy was perceived as the strongest area of growth, followed by children's social/emotional and nutritional levels and health and dental status. See Table 3, page 12, for outcomes on these four measures.

- **Emergent literacy**—Emergent literacy is a young student's ability to express himself or herself with a variety of words and to understand an even larger vocabulary of words typically used in conversations and stories. Experts believe it is the best predictor of school success. When they started the Program, about 40 percent of the students were evaluated by their teachers as below average. By the time they finished the program, only 20 percent were still evaluated as below average.
- **Social/emotional level**—The skills acquired through socialization are important for functioning successfully in a learning context. Additionally, the quality of classroom relationships may determine how children are motivated to explore the school environment. Although the majority of students were evaluated as having the socialization skills necessary for their age group at the beginning of the Program, the percentage of children viewed as above average had doubled by the end of the Program.

- **Nutritional level**—The Program’s goal is to help staff, children, and families understand the relationship of nutrition to health, and to apply this knowledge in developing sound eating habits. Teachers perceived that more students had excellent nutritional levels when they left the Program than when they began.

Table 3

**At-Risk Preschool Program
Entrance and Exit Data Comparison
Year Ended June 30, 1997**

Student Level	Status	Entrance Percentage	Exit Percentage
Emergent Literacy	Above average level	7	16
	At age level	55	63
	Below age level	38	21
Social/Emotional	Above average level	6	12
	At age level	61	67
	Below age level	33	21
Nutritional Level	Excellent	13	19
	Good	66	66
	Fair	18	13
	Poor	3	2
Health/Dental Status	Excellent	12	16
	Good	62	65
	Fair	21	15
	Poor	5	4

N = 3,446 students.

Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

- **Health/dental status**—Health and dental status were evaluated because these components directly affect children’s ability to achieve social competence. Improving children’s health and physical abilities includes teaching families appropriate steps to correct physical and mental problems and increasing their knowledge of and access to preventive health care. Teachers’ evaluations showed that they perceived that children’s overall health had improved while they were in the Program.

FINDING II

AT-RISK PRESCHOOLERS ARE marginally BETTER PREPARED IN KINDERGARTEN THAN SIMILAR STUDENTS WHO DID NOT ATTEND PRESCHOOL

Children who attended the At-Risk Preschool Program prior to attending kindergarten in school year 1996-97 had marginally higher achievement scores in kindergarten than their at-risk counterparts who did not attend preschool. Children who participated in the Program were more likely to be performing at or above their chronological age level in kindergarten and were less likely to be performing below it than were at-risk children who did not participate. For the most part, however, the differences were small.

Background

The At-Risk Preschool Program was designed to ensure that children enter kindergarten and elementary school ready to learn. To determine how the Program impacted those children it served, data was collected for two groups: 1) children in kindergarten during the 1996-97 school year who had attended At-Risk Preschool, and 2) other children in kindergarten during the 1996-97 school year who were similarly at risk but who had not attended At-Risk Preschool. The first group is referred to as the “program group” and the second as the “non-program group.” The criteria used to establish the at-risk status of the non-program group were the same as the screening criteria for the eligibility in the At-Risk Preschool Program (such as eligibility for free and reduced-priced lunches).

Data was collected to assess former at-risk preschoolers’ scholastic achievement and other skills necessary for success in kindergarten, and to ascertain if the program group surpassed the non-program group academically. The following were selected as performance measures: 1) the Peabody Picture Vocabulary Test (PPVT), a measure of receptive (hearing) vocabulary; and teachers’ evaluation of 2) emergent literacy, 3) problem-solving skills, 4) gross motor skills, 5) fine motor skills, 6) social behavioral skills, and 7) parental involvement. For a more detailed description of methods, see Appendix A (pages a-i through a-vi).

At-Risk Preschoolers Score Better Than Comparison Group

The program group performed marginally better than the non-program group in five of the seven measures, and the differences between the groups were statistically significant—that is, not likely to have occurred by chance. The five measures include the PPVT and teachers' evaluation of students' emergent literacy, problem-solving skills, gross motor skills, and fine motor skills. However, the Program had weak effects on participants' social/behavioral skills and parental involvement. Each of these measures is defined in Table 4 (see page 15) and in the sections that follow, together with a discussion of what the data showed about the two groups' performance.

- **PPVT**—Although the program group performed somewhat better than the non-program group in the verbal assessment, both groups' average scores were below national averages. The program group scores were in the 23rd-percentile, while the non-program group fell in the 16th-percentile based on national averages.
- **Emergent literacy**—Over three-fourths of the program group was viewed by their kindergarten teachers as performing at or above age level regarding emergent literacy skills. That is, most students could express themselves with a variety of words and could understand an even larger variety of words typically used in conversation and stories. Less than 20 percent of the program group was perceived as below average in this critical component, compared with almost 30 percent of the non-program children.
- **Problem-solving**—Four-fifths of the program group was at or above age level regarding problem solving. In other words, students were effective in handling unfamiliar tasks and could implement their own ideas in carrying out a task rather than relying on imitation. Although half of the non-program children were seen at age level, more were perceived as below age level than the program group. Similar to the emergent literacy component, about one-third of the non-program children were below average.
- **Gross motor skills**—Building children's gross motor skills was the strongest effect of At-Risk Preschool. During kindergarten, four-fifths of the program group was at or above age level regarding gross motor skills. Therefore, most of these children mastered many large muscle skills, such as walking, running, and climbing. More non-program children were below average and the difference between groups was greater than in any other skill area.

Table 4
At-Risk Preschool Program
Kindergarten Performance Comparison
Year Ended June 30, 1997

Performance Measures	Teacher's Evaluation	Program Participants	Comparison Group
Peabody Picture Vocabulary Test (PPVT) Score —Designed primarily to measure a subject's receptive (hearing) vocabulary. This score also provides a quick estimate of one major aspect of verbal ability.	Mean score	89	85
		(681) sig **	(318)
Emergent Literacy Skills —Expresses himself or herself fluently with a variety of words and can understand an even larger variety of words used in conversation and stories. Has been exposed to books and has shown interest in how ideas are expressed.	Above age level	25%	22%
	At age level	57%	49%
	Below age level	18%	29%
		(730) sig**	(215)
Problem Solving Skills —Effective in handling unfamiliar tasks. The child implements his/her own ideas in carrying out a task rather than relying on imitation.	Above age level	18%	17%
	At age level	62%	52%
	Below age level	20%	31%
		(732) sig**	(215)
Gross Motor Skills —Mastered many large muscle skills such as walking, running, and climbing.	Above age level	17%	12%
	At age level	79%	77%
	Below age level	4%	11%
		(732) sig ***	(215)
Fine Motor Skills —Mastered skills requiring hand-eye coordination such as the use of a pencil, crayons, or scissors.	Above age level	20%	16%
	At age level	68%	67%
	Below age level	12%	17%
		(726) sig*	(215)
Social/Behavioral Skills —Functions within a cooperative learning environment in which the child works both independently and as a member of small and large groups.	Above age level	18%	19%
	At age level	65%	57%
	Below age level	17%	24%
		(732) NS	(215)
Parental Involvement —Frequency of parent/guardian involvement in kindergarten program. Parental involvement includes activities such as serving as classroom aides, tutoring at home, accompanying classes on field trips, and attending school meetings and programs.	Daily	8%	12%
	Weekly	19%	16%
	Monthly	18%	21%
	Less than monthly	36%	24%
	Never	19%	27%
		(688) NS	(215)

Number in parentheses = number of children.

* Significant at the .1 level.

** Significant at the .05 level.

*** Significant at the .005 level.

NS=Not significant.

Source: Auditor General staff analysis of data collected by staff and data provided by the Arizona Department of Education.

- **Fine motor skills**—The majority of both groups were at or above age level in kindergarten. That is, most students mastered skills requiring hand-eye coordination, such as the use of pencils, crayons, or scissors. Results for the program group were slightly higher than results for the non-program group.
- **Social/behavioral skills**—The At-Risk Preschool Program had limited impact on children’s social and behavioral skills, and there was little difference between groups regarding this critical outcome. The skills or behavior acquired through social development are important for successful functioning in a learning environment. The quality of classroom relationships (i.e., teacher-child, child-child) may determine how children are motivated to actively explore the school environment.
- **Parental involvement**—The At-Risk Preschool Program also had limited impact on parental involvement. There was no difference in participation between the two groups of parents, with fewer than one-third of all parents participating daily or weekly in their child’s kindergarten educational experience. Unfortunately, over half of the parents participated less than monthly or never at all. Other research shows that parental involvement is one of the critical socializing forces in a child’s development. It enhances the parent-child relationship as well as the child’s attachment to school, thus promoting school readiness and social adjustment.

FINDING III

PROGRAM EFFECTS FADE OVER TIME WITHOUT FOLLOW-UP PROGRAMS

The gains that At-Risk Preschool Program participants had made over their at-risk peers when they entered kindergarten disappeared by grade 3. At-Risk Preschool children experience what is known as the “fade-out” effect, which occurs if there is variation in program quality across sites and if successive grades fail to build upon preschool influences and address age-specific needs. The fade-out effect is consistent with findings from national studies of similar programs. Consistent preschool program quality and follow-up support programs in kindergarten through grade 3 are essential to sustain children’s academic gains resulting from at-risk preschool. At present, however, the quality of preschool programs is not consistent, and follow-up programs are not in place.

Background

The second evaluation (Auditor General Report No. 97-2) documented that children who attended an at-risk preschool from 1991 through 1994 performed minimally better than a comparison group of children in the primary grades. Data collected on these children and on a demographically similar group of children who attended the same schools, but were not enrolled in the At-Risk Preschool Program, showed that both groups scored below the national average on standardized assessments. Modest differences existed in academic performance between the at-risk and comparison groups in grade 2 in math and reading, but the difference disappeared by grade 3.

To continue evaluating how students who participated in the At-Risk Preschool Program subsequently performed in primary grades, data was collected on children who attended at-risk preschool before the 1995-96 school year. Eleven of the original 27 schools that operated pilot programs from school years 1990-91 through 1995-96 reported academic information on children from the time they entered at-risk preschool. The data collection assessed student achievement on standardized tests of mathematics, reading, and language. Results from the State’s administration of the Stanford Achievement Test included 500 children who attended the At-Risk Preschool Program and 600 children who did not attend the Program. As in Finding II (see pages 13 through 16), the first group is referred to as the “program group” and the second group as the “non-program group.” Since few districts administer standardized tests in grades 1 and 2, the number of children included in the analysis is limited. Forty-seven at-risk children are included in the analysis for grade 2; 361 for grade 3; and 111 for grade 4. A discussion of the data collection procedure is presented in Appendix A (see pages a-i through a-vi).

Student Performance

This year's findings, consistent with last year's, reveal that both the program and non-program groups are performing below national averages and there are no substantial academic differences between the groups by grade 3. Although children outperform the non-program group through grade 2, they experience a "fade-out" effect, in which this advantage eventually disappears.

Program and non-program children perform below national norm—Both the program and non-program groups of children scored below national norms on standardized tests. For example, both groups have a grade 3 reading norm at the 32nd-percentile, compared with the national norm at the 50th-percentile for all grade 3 students. Table 9, in Appendix A (see page a-iv), presents percentile scores for language, reading, and mathematics.

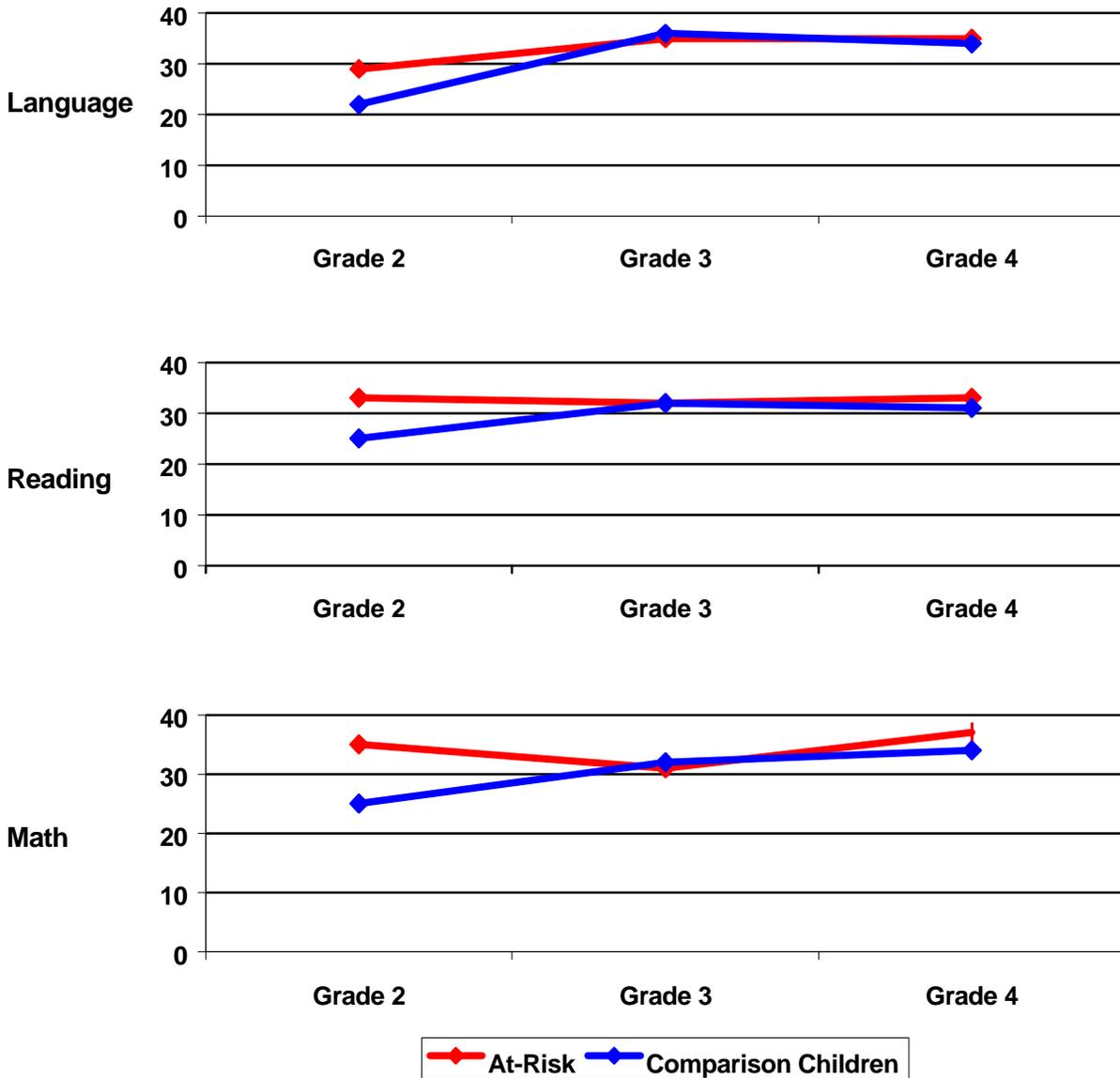
Program group outperforms non-program group until grade 3—Former At-Risk Preschool children outperformed the comparison group in grade 2 in reading and math (see Figure 2, page 19 for results). However, by grades 3 and 4, there were no significant differences in achievement between the two groups. For example, in reading in grade 2, the program group had a norm at the 33rd-percentile compared to a norm at the 25th-percentile for the non-program group. However, by grade 3, both groups had norms at the 33rd-percentile.

Program effects fade over time—The performance of the program group, which saw the advantages over the non-program group erased by grade 3, is an example of what has been termed the fade-out effect. Developmentally appropriate preschool curriculum and practices provide learning experiences and develop children's language, which helps disadvantaged children enter school at, or closer to, the same level as their more advantaged peers. However, program effects fade without systemwide adherence to quality standards in preschools and developmentally appropriate follow-up programs in kindergarten through grade 3.

In a kindergarten to grade 3 classroom using developmentally appropriate practices, children learn through active involvement in various "hands-on" learning experiences with each other, with adults, and with a variety of materials. Teachers provide opportunities for children to plan, anticipate, reflect on, and revisit their own learning experiences and to develop positive social behavior by working on projects individually and in small and large groups. Furthermore, the curriculum is designed to integrate content areas (e.g., language and literacy, mathematics, social studies, science, art, and music) and to help children establish a foundation for lifelong learning.

Figure 2

At-Risk Preschool Program
Average National Percentile Scores on Nationally Norm-Referenced Tests
of At-Risk Preschool and Comparison Children
Grades 2 through 4
Year Ended June 30, 1997



Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

The At-Risk Preschool findings are consistent with other national research. Most other studies demonstrated that cognitive advantages gained by Head Start preschool participation either vanished or faded substantially by grade 3 or 4 (*Lee, McKey, et al; et al.; Natriello et al., and Reynolds*). Head Start, created in 1965, was the first national program for preschoolers and today remains one of the most well-known programs, providing children with a diverse array of academic and social services. However, the effectiveness of Head Start and other preschool programs has been a somewhat controversial issue due to the fade-out effect. In 1985, a study involved the analysis of 200 separate evaluations of Head Start conducted over a 20-year period. The research revealed that Head Start participants showed some statistically significant gains in cognitive and socioemotional development; however, children experienced a frequent “fade out” effect, whereby their academic gains disappear at the end of the early elementary grades.

Why should preschool effects fade over time and eventually disappear? Two factors, identified in the 20-year Head Start study, and documented in the larger body of research on Head Start, were present in this evaluation of At-Risk Preschool: variation in program quality across sites, and lack of developmentally appropriate follow-up programs for at-risk children in elementary education.

Uneven quality across At-Risk sites—Finding IV (see pages 23 through 32), discusses the variation found in quality across the various locations offering At-Risk Preschool. Currently, private sites lag behind public and Head Start programs in quality.

Lack of follow-up programs—Follow-up programs for At-Risk Preschool children have been restricted by recent changes to the Early Childhood State Block Grant, though the extent cannot be fully determined. The Legislature eliminated the state-funded At-Risk Program in 1996. The extent to which districts used block grant monies to serve at-risk children in kindergarten to grade 3 in that year cannot be determined, because ADE was not required to and did not track this information. Changes the Legislature made in 1997 mean that block grant monies are no longer required to be specifically used to serve at-risk children in kindergarten through grade 3 in school year 1997-98, though some district and federal monies are available for this purpose. However, information is not available on the extent to which these other sources are being used for at-risk programs for children in kindergarten through grade 3.

Recommendation

Because the fade-out effect is evident in Arizona's At-Risk Preschool Program children, ADE should:

1. Recommend that all districts who plan to operate an at-risk preschool also implement follow-up programs using developmentally appropriate curriculum and practices for at-risk students in kindergarten through grade 3. In a kindergarten through grade 3 classroom using developmentally appropriate practices, children learn through active exploration in various learning experiences with each other, with adults, and with a variety of materials. Furthermore, developmentally appropriate curriculum in these grades integrates content areas and helps children build a foundation for lifelong learning.

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FINDING IV

PRIVATE SITES CONTINUE TO LAG BEHIND PUBLIC SITES IN QUALITY

This third-year evaluation showed the same pattern that had been seen previously: At-Risk Preschool programs at private sites lagged behind programs at public and Head Start sites in incorporating the elements of a quality program into their operations. The evaluation, based on visits to a total of 106 sites, showed that while private sites performed better than in the past, they were weak in achieving the goals that were most critical for a quality program. Several conditions exist that allow for variation in the quality of At-Risk Preschool, such as diverse childcare regulations and lack of monitoring and oversight.

Background

The first annual evaluation this Office performed indicated that ADE designed a program that had the potential to provide quality education for at-risk four-year-olds. The Early Childhood Advisory Council (ECAC) developed Guidelines for Comprehensive Early Childhood Programs in 12 goal areas. ADE incorporated these goals into its program application process. Districts operating at-risk programs were required to specify the activities and strategies implemented to achieve each of the 12 goal areas. The goals are listed in order of importance as determined by the Office of the Auditor General:

- Preschool program operation: developmentally appropriate practices and curriculum;
- Program administration: staff qualifications;
- Staff development: providing supervisory support and in-service training;
- Linguistic and cultural integration;
- Parental involvement;
- Social services;
- Child assessment;
- Self-evaluation of the Program;

- Health care;
- Nutrition;
- Community school district support and involvement; and
- Program meets the needs of the working parent.

Discussion of the extent to which sites met these goals is based on the findings from 94 of the 102 structured site observations of preschools from all 15 counties. Forty-one sites are included in 1996 and 53 in 1997. Eight sites were not included because they include special education, family literacy, Even Start, and other community-based classes.

Goals Not Met Equally Across Public, Head Start, and Private Sites

Like last year's evaluation, this third-year evaluation addresses all but the last goal, focusing on those goals that were most critical during the Program's formative years (the first eight goals listed above). This year's evaluation used the same indicators developed for last year's evaluation to measure the extent to which sites achieved the goals. Evaluators looked for responsiveness toward problems identified in last year's report. However, to gain a broader view of the Program, evaluators also observed a different set of preschool sites. Therefore, some differences in scores may be attributed to variation in the sites that were evaluated.

On average, public sites were the most compliant regarding the Early Childhood Advisory Council guidelines and experienced the greatest improvement over time. A sum was calculated for each site to assess overall ratings. Public sites earned the highest rating (89 percent) followed by Head Start (88 percent). Private sites had 64 percent compliance.

Most public and Head Start sites met the majority of the goals specified by ECAC. These preschools use developmentally appropriate practices, meet staff qualifications, provide staff development, offer linguistic and cultural integration, involve parents, comply with health care requirements, follow nutritional guidelines, and are involved in the community. Additionally, public and Head Start sites evaluated this year showed significant improvement in two of the three weak areas identified in last year's report (i.e., providing social services and conducting child assessment). See Table 5 (page 25) for an overview of preschool goal compliance for fiscal years 1996 and 1997.

In contrast, private sites were weak in achieving the goals that were most critical for a quality program. Although private site scores were slightly higher this year, these sites continued to lag behind public and Head Start preschools in the majority of goal areas.

Table 5

**At-Risk Preschool Program
Two-Year Comparison
Percentage of Program Sites Meeting Project Goals
Based on Selected Indicators
Years Ended June 30, 1996 and 1997**

	<u>Public</u>		<u>Head Start</u>		<u>Private</u>	
	1996	1997	1996	1997	1996	1997
Preschool Program Operations¹	89%	95%	86%	91%	55%	58%
Staff Qualifications²						
■ Meets minimum criteria	100	93	100	100	100	80
Staff Training and Development						
■ Program's early childhood curriculum training	81	86	100	100	87	90
■ Developmentally appropriate practices training	76	97	100	93	89	80
Linguistic and Cultural Integration						
■ Classrooms have learning activities, materials, and equipment that reflect diversity	90	82	75	93	60	56
■ Classroom instruction in English and the child's primary language	90	96	100	93	38	56
■ Bilingual staff	100	97	100	86	89	67
Parental Involvement						
■ Telephone, newsletter, conference, and meetings	95	97	75	93	88	90
■ Home visits	83	93	100	100	67	60
Social Services						
■ Referrals and follow-up with families and agencies	67	83	75	86	30	40
■ Information on childcare resources and agencies distributed	47	79	25	86	30	40
■ Collaborates with other agencies in determining family needs	53	97	50	86	40	50
■ Information on childcare facilities and early childhood education provided	41	76	75	71	44	50
Child Assessment	67	86	75	93	30	44
Self-Evaluation of Site	40	59	43	43	30	30
Health Care						
■ Each child's health history (i.e., medicine, growth, allergies, immunizations, and limitations)	85	100	100	93	88	100
■ Health screening (i.e., medical, vision, hearing) provided	91	97	100	93	75	40
Nutrition						
■ Meals provided according to a written plan	87	93	100	93	67	80
■ Adults sit with children during meals	79	79	100	93	55	90
Community Involvement						
■ Participation in district and school meetings and activities	95	93	100	64	25	70
Average	78	89	84	88	59	64

Number of observations = 94

¹ Reported in more detail in Table 6 (see page 27).

² Reported separately in Figure 3 (see page 29).

Source: Auditor General staff analysis of site observation data.

Their overall score of 65 percent was considerably below that of public and Head Start sites. Critical goals not met include the use of developmentally appropriate practices, linguistic and cultural integration, providing social services, child assessment, health care, and self-evaluation. These deficiencies, which were identified in last year's report, persisted as weaknesses.

- **Preschool Program Operations**—On average, public and Head Start preschool sites have met Arizona's standards for program operation. For example, they have sufficient materials, provide children the opportunity to learn through diverse activities, and allow children to work individually and collaboratively in groups. However, approximately one-third of private sites failed to use developmentally appropriate curriculum, the single most important component in at-risk preschool. Additionally, they did not provide sufficient materials, adequate project and learning centers, and computer technology. As noted in Table 6 (page 27), the private sites have multiple deficiencies in meeting this goal.

Developmentally appropriate practices, found in public and Head Start sites, emphasize the whole child (cognitive, behavioral, physical, and social aspects) while taking into account gender, culture, and other factors that meet the individual child's needs and learning styles. For example, activities were conducted in such a way that children from different cultures were drawn into them. Curriculum was designed as an interactive process utilizing activities that were relevant and meaningful for young children. Additionally, the environment provided an opportunity for active exploration and hands-on experiences. Children learned through integrated themes, and dramatic and other types of play facilitated by teachers in both indoor and outdoor settings.

One example of the greater deficiencies shown by private sites is the extent to which developmentally appropriate practices are used in the classroom. In contrast to the public sites, about one-third of private sites failed to integrate individual differences into the curriculum. The majority of private sites failed to provide sufficient learning materials and teachers failed to move among groups and individuals to facilitate involvement with activities.

- **Staff Qualifications**—Public site teachers had the highest levels of education. More than half had a bachelor's degree in a related educational field, and one-fourth had a master's degree. Although most Head Start teachers had only the minimum requirement of a Child Development Associate Certificate (CDA)¹, they all receive early childhood training regarding developmentally appropriate practices and are closely supervised.

¹ A CDA requires 120 clock hours in early childhood education and 480 hours of experience with children.

Table 6
At-Risk Preschool Program
Two-Year Comparison
Percentage of Program Sites Meeting Specific Elements
of At-Risk Preschool Program Operations Goal
Years Ended June 30, 1996 and 1997

Preschool Program Operations	Public		Head Start		Private	
	1996	1997	1996	1997	1996	1997
Sufficient learning materials	71%	97%	50%	86%	20%	40%
Developmentally appropriate curriculum used	92	86	100	79	70	67
Children work individually and informally in groups	100	93	67	93	100	78
Children have the opportunity to develop social skills	92	97	100	93	70	78
The learning environment provides children the opportunity for active exploration and interaction with adults and materials	96	100	100	93	60	67
Projects and learning centers used	92	96	75	93	60	67
Teachers' expectations match and respect children's developing capabilities	96	96	100	93	50	67
Teachers move among groups and individuals to facilitate involvement with activities	96	96	100	86	40	44
Teachers talk and read to children	96	89	100	93	50	56
Teachers listen carefully to children, encouraging them to extend their ideas	96	96	100	100	50	67
Technology in the curriculum	48	93	50	86	40	10
Average	89	95	86	91	55	58

Number of observations = 94

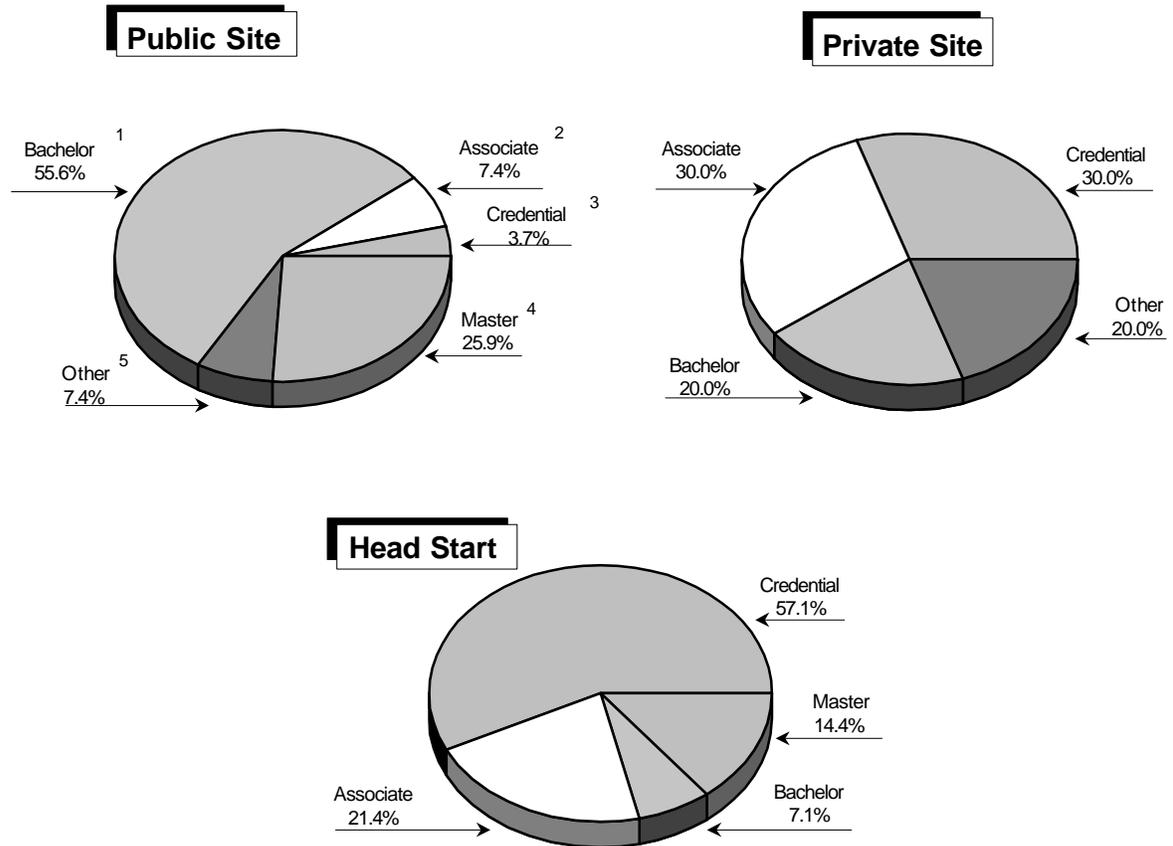
Source: Auditor General staff analysis of site observation data.

Private-site teachers with bachelor's degrees tended to come from fields other than education to a much greater degree than their counterparts at public and Head Start sites. Twenty percent of private-site teachers had a bachelor's degree in an unrelated field. This may partially explain why private sites lag behind in developmentally appropriate practices. Figure 3 (see page 29) shows teachers' educational levels.

- **Staff training and development**—Similar to last year, the majority of preschool sites provide staff training and development. However, at Head Start and private sites, the level of training in the use of developmentally appropriate practices decreased.
- **Linguistic and cultural integration**—Most public and Head Start classrooms have learning activities, materials, and equipment that reflect children's diversity (i.e., ethnicity, gender, and ability); classroom instruction and conversation is in both the child's primary language and in English, allowing all children to be exposed to two languages. Additionally, public and Head Start programs employ a bilingual staff providing language role models for children and parents who speak languages other than English. By contrast, over one-third of all private sites failed to be responsive to young children's multicultural backgrounds in these ways.
- **Parental involvement**—Public and Head Start sites had the most parental involvement. Program staff communicated with parents through phone calls, notes, regular classroom newsletters, conferences, and meetings. By contrast, private sites failed to conduct a comparable number of home visits, which are critical for establishing a relationship with the parents, for assessing needs of the child and family, and for providing referrals for additional social and health services.
- **Social services**—Although all sites received higher percentage scores on this year's evaluation, the private sites lagged behind. The majority of public and Head Start sites collaborated with other agencies in identifying families' needs for childcare and early childhood education. However, only about half of the private sites had information on childcare resources and provided referrals and follow-up with families and agencies.
- **Child assessment**—Last year's evaluation found that many preschool sites lacked adequate child assessment. Although public and Head Start programs have made child assessment an integral component in their programs this year, many private sites have made little progress. Child assessment should provide parents and teachers with an understanding of how a child is performing and identify weak areas on which to concentrate.
- **Self-evaluation**—Preschools rarely dedicate their resources to adequately evaluate their at-risk programs. Although self-evaluation was highlighted as a weakness in the last evaluation, it remains a problem. If effective self-evaluation is not in place, sites

Figure 3

**At-Risk Preschool Program
Staff Qualifications by Level of Education
Year Ended June 30, 1997**



¹ Bachelor: Bachelor's degree in Early Childhood Education, Child Development, or Elementary Education, or Bachelor's degree in Elementary Education plus Early Childhood Endorsement.

² Associate: Associate's degree in Early Childhood Education or Child Development.

³ Credential: Child Development Associate Certificate.

⁴ Master: Master's degree in education.

⁵ Other: Bachelor's degree in field other than education.

Source: Auditor General staff analysis of data provided by school districts.

may find it difficult to pass upcoming accreditation requirements. Currently, all preschools must be licensed by the Arizona Department of Health Services; however, by July 1, 1999, all sites must be accredited by recognized organizations.

Each site should evaluate its program on an annual basis to acknowledge its strengths and weaknesses. As specified in the ECAC guidelines, participants in the evaluation should include teaching staff, administrators, and parents. Classroom observations, student outcomes, and staff and parent questionnaires should be used to determine goals for the following year.

- **Health care**—The majority of all sites collected children’s health history (i.e., medicine, growth, allergies, and immunizations). Although public and Head Start sites provided health screenings (i.e., medical, vision, and hearing) only 40 percent of private sites adhered to this important component.
- **Nutrition**—All sites follow nutritional guidelines for preschool children. The majority of all sites provide meals according to a written plan and adults sit with the children during meals. The Program’s goal is to teach staff, children, and families to understand the relationship of nutrition to health, and to apply this knowledge in developing sound eating habits.
- **Community involvement**—Involvement is greatest at public sites, up dramatically at private sites, but down at Head Start sites. Public site staff are involved in the community by attending district and school meetings and activities when appropriate. The majority of private site staff attend meetings, while Head Start participation is down from last year. Because collaboration was identified as an important component, both Head Start and private sites should become more involved in their local school system.

Factors Leading to Uneven Performance Across Preschool Sites

Several conditions exist that allow for diverse program implementation, which significantly affected the quality of At-Risk Preschool. Statutory requirements concerning collaboration and regulations provided for uneven implementation across preschool sites. Furthermore, legislative changes that lower quality standards for preschools will continue to impact program quality.

Statutory requirements that school districts collaborate with private providers in the provision of early childhood services may have compromised the quality of some programs. School districts met this requirement by subcontracting with private preschools and day-care centers for services. However, the Program experienced problems with collaboration and implementation due to differences in childcare regulations.

Uneven program implementation caused by diverse childcare regulations—Program implementation varied among preschool providers because of differences in childcare regulations. Our first report (Auditor General Report No. 96-1) pointed out that childcare regulations are less strict than early childhood guidelines. For example, Department of Health Services childcare standards are less strict than the ADE’s Early Childhood Guidelines regarding teacher qualifications, adult-to-child ratios, child group size, and the provision of a variety of developmentally appropriate activities during the day. Additionally, childcare providers indicated that they may have difficulty meeting the guidelines within the maximum dollar amount allowed.

This has been the case in the majority of private sites visited. Most private sites lagged behind in curriculum standards in meeting the child’s needs and learning styles. However, 90 percent of Public and Head Start programs adhered to curriculum standards set by the National Association for the Education of Young Children (NAEYC) and the Early Childhood Advisory Committee (ECAC) and used developmentally appropriate practices in the classroom. For example, they had sufficient learning materials and provided the children the opportunity to learn through diverse activities and learning centers.

Requirements to adhere to quality guidelines change—Recent legislative changes that lower preschool standards may continue to impact program quality. For school year 1996-97, all preschool providers were required to follow the ECAC guidelines for all services and activities, including components such as staff qualifications and program implementation. In contrast, for school year 1997-98, districts no longer were required to adhere to the ECAC guidelines. Although some districts still tried to maintain quality standards, Laws 1997, Chapter 231, §33 required that contracts between school districts and private providers eliminate language concerning standards of operation. Rather, contracts were limited to numbers of children served, hours of service to be provided per child, payment rates, and other financial aspects of the Program.

Lack of Monitoring Affects Quality

While public sites complied with the majority of ECAC guidelines and were subject to occasional monitoring, private providers enjoyed limited accountability.

ADE has not yet monitored the Program efficiently to assure that all providers are implementing it with enough quality to bring about the expected impact. Although ADE visited 52 out of 317 sites last year, only 5 private sites were monitored despite the fact that the majority of private sites had multiple deficiencies. ADE generally left oversight up to the school districts because the private sites operate under contracts with the districts. Although information was available from the Office of the Auditor General’s second year report (Report No. 97-2) regarding failing programs, ADE did not consider measures of quality when allocating funding.

Recommendations

In order to improve and maintain the quality of the At-Risk Preschool Program, ADE needs to:

1. Require all districts to follow the 12 Early Childhood Advisory Council (ECAC) guidelines. This requirement should be included in the application language.
2. Provide technical assistance to school districts and especially to those school districts who contract with private and federal providers. This would include instructions for oversight to ensure even performance across preschool sites.

STATUTORY ANNUAL EVALUATION COMPONENTS

Laws 1994, Ninth S.S., Ch. 2, §30, requires that the Auditor General conduct an annual program evaluation of the At-Risk Preschool Project and provide the evaluations to the Speaker of the House of Representatives, the President of the Senate, and the Governor on or before December 31, 1995, and each year thereafter. We provide a response to each evaluation requirement.

1. Information on the number and characteristics of the children and the families of the children participating in the Program.

Analysis of school district applications for at-risk preschool funds indicated that 4,730 children would be served by the At-Risk Preschool Program during the 1996-97 school year. Information on 3,841 children from 75 out of 90 school districts who were served by the Program is available for analysis. Due to data management problems, data for children from the remaining districts was not available. Analysis of the information on the 3,841 children provides the following profiles.

The majority of the children in the Program are Hispanic (59 percent). Anglo children represent 26 percent of the participants, Native American children 8 percent, and African-Americans 6 percent. Asian and other children account for the remaining 1 percent.

The children served are 51 percent male and 49 percent female. The majority of the children, 63 percent, speak English at home, and 37 percent speak Spanish. Two percent of the children have no siblings, and 63 percent have one or two siblings. Thirty-five percent of the children have three or more siblings. Twenty-two percent of the children live in single-parent households. Four percent of the children live in households where no one is employed, 71 percent of the children live in homes where one adult works, and the remaining children live in homes where 2 or more adults are employed.

2. Information on the number of public schools, private day care operators, and federally funded preschools participating in the project.

Ninety school districts are providing at-risk preschool services at an estimated 317 classes consisting of 245 public school sites, 45 private childcare sites, and 27 Head Start sites. Twenty-two districts contracted with Head Start to provide services, and 18 districts contracted with private childcare providers for services.

3. Information on the average cost for each participant.

Cost per participant was calculated based on the number of students in the Expansion Program as documented by our Office through a survey of school districts, and by reviewing data provided by the Arizona Department of Education. Additionally, cost per participant was calculated to both include and exclude capital outlay for the 4,730 participants in the Pilot and Expansion Programs. The costs suggest that after initial capital expenditures for program start-up, cost per child is reduced.

Cost per child is shown in Table 7. Cost for the 1997 Expansion Program is based on 4,730 children. Cost for the 1996 program is based on 3,795 children.

Table 7

**At-Risk Preschool Program
Cost per Child
Years Ended June 30, 1996 and 1997
(Unaudited)**

	Including Capital Outlay	Not Including Capital Outlay
Expansion Program 1997	\$2,481	\$2,330
Expansion Program 1996	3,798	2,923

Source: Auditor General staff analysis of data gathered through a survey of school districts, and data provided by the Arizona Department of Education.

4. Information concerning the scholastic performance of previous participants in the project including but not limited to:

- (a) *The performance of past participants on a nationally standardized norm-referenced achievement test, and***
- (b) *The performance of similar students who did not participate in the project.***

Information reported in this section is based on data collected on children who attended the at-risk preschool programs that began in 1990. Informa-

tion was collected on 503 children who had participated in at-risk preschool pilot programs at 11 districts. Follow-up information was completed for each year they attended school. Data was collected to examine the relationship between children's participation in state-supported at-risk programs and their academic and social performance over time. Similar information was collected for a comparison group of children. These data collection efforts resulted in a small number of children followed through grade 4.

See Appendix A (pages a-i through a-vi), for a description of the procedures used to gather the data that have been analyzed and reported here and a description of the at-risk children and the comparison group children for whom data was collected.

At-risk and comparison group children perform below national norms— Both the at-risk and comparison groups of children score below national norms on standardized tests and there are no substantial academic differences between the groups by grade 3. Both groups scored below national norms on standardized assessment measures such as language composition, prewriting, vocabulary, reading, math, math problem solving, and math procedures. For example, although the national norm is established at the 50th-percentile, the at-risk preschool children's norms for reading are at the 32nd-national percentile in grade 3, with similarly low scores for the comparison group of children. See Table 9, in Appendix A (page a-iv), for student scores.

(c) *The performance of all students in the same grade at each of the schools at which the program was operated.*

This analysis was not conducted due to the small number of children who could be tracked over time, and the even smaller number of children who are still attending the same school they attended for preschool

5. A summary of the program information required to be provided under section 26 of this act.

ADE's application package for the 1996-97 at-risk preschool program continuation fund required districts to provide relevant program information. However, ADE did not strictly require districts to address all of the pertinent areas, and distributed monies to districts that did not adequately address each area.

Following the directive of the Joint Legislative Budget Committee, ADE simplified the application for the State's Early Childhood State Block Grant for 1996-97. The application required only that school districts report the number of sites, type of program provided, number of sessions and participants at each site, and the num-

ber of hours of operation. School districts and private and federal providers are no longer required to adhere to the 12 goals for the comprehensive Early Childhood Program. Instead, the 12 ECAC goals are recommended to the school districts.

- (a) ***An assessment of the needs of the at-risk preschool children who reside in the school attendance area.***
 - (i) ***An assessment of the academic and readiness needs of children in the at-risk program.*** Districts are required to address assessment in the application.
 - (ii) ***The most appropriate number of days and hours per week during which the program will operate.*** Districts must report the number of sessions per day, number of hours per session, and number of days per week for each site in the application.
 - (iii) ***Child care needs including nutrition.*** Districts must address nutritional services under goal 9.0 of the application.
- (b) ***A proposal detailing a program specifically designed to provide assistance to the at-risk preschool pupils.***
 - (i) ***A description of the procedures used to identify the at-risk children.*** In the application the ADE has defined eligibility as residing in the district, being four years old as of September 1, and being eligible for the federal free lunch program. Districts are to use a screen to prioritize children in the event that they have more applications for the program than they have spaces.
 - (ii) ***A description of clearly defined goals for meeting the academic and readiness needs.*** Districts must address these areas in the application.
 - (iii) ***A description of the instructional approach to be used in meeting the identified needs of the at-risk preschool pupils which is developmentally appropriate and consistent with nationally recognized standards of early childhood education.*** Districts must address this issue in Goals 2.0 and 3.0 of the application.
 - (iv) ***A list of the qualifications and experience of the staff.*** *The Guidelines for Comprehensive Early Childhood Programs* provided minimum qualifications for staff. In addition, districts must address this issue in Goals 1.0 and 5.0 of the application.

- (v) ***A plan for the provision of in-service training for personnel involved in the preschool project.*** Districts must address this issue in Goal 5.0 of the application.
- (vi) ***A description of the service delivery model including the extent to which the project will collaborate with other at-risk preschool programs in the district attendance area.*** Districts must address this issue in Goal 11 of the application.
- (vii) ***A plan showing how the programs developed under this act will be articulated with existing programs in kindergarten programs and grades one through three.*** This area is addressed through Goals 1.0 and 11.0 of the application.
- (viii) ***A plan for involving families of at-risk preschool pupils in the program.*** Districts must address this issue in Goal 4.0 of the application.

6. An evaluation of the overall effectiveness of the pilot project based on performance based outcome measures including the subsequent scholastic performance of participants.

Immediate effects—Analysis of multiple data sources on children who attended an at-risk preschool reveals that the Program has some limited positive effects. The At-Risk Preschool Program marginally improved the performance of children who participated during the 1995-96 through 1996-97 school years. Most of the children were performing behind their age level when they entered the Program, and while most were still behind when they left, the gap had narrowed in a number of areas.

Short-term effects—Children who attended the At-Risk Preschool Program prior to attending kindergarten in school year 1996-97 had somewhat higher achievement scores in kindergarten than their at-risk counterparts who did not attend preschool. The Program group tended to have more children performing at or above their chronological age level and fewer children who were performing below it. For the most part, however, the differences between the program and non-program groups were marginal.

The most significant difference between the groups was in gross motor skills. This finding is disappointing because the other measures, such as vocabulary development, emergent literacy, parental involvement, and social/behavioral skills, are so critical for success in school. Moreover, the Program had limited impact on parental involvement and social and behavioral skills.

Four-year effects—Although the at-risk preschool group made significant academic achievement in reading and math in grade 2, the gains dropped off over time. At-

Risk Preschool children experienced what is known as the “fade-out” effect, which occurs due to the variation in program quality across sites and if successive grades fail to build upon academic preschool gains and address age-specific needs. Consistent preschool program quality and follow-up support programs in kindergarten through grade 3 are essential to sustain children’s academic gains resulting from at-risk preschool.

The At-Risk Preschool findings are consistent with other national research. Most other studies demonstrated that whatever cognitive advantages were gained by Head Start preschool participation either vanished or faded substantially by grade 3 or 4 (*Lee, McKey et al.; Natriello et al., and Reynolds*). Head Start, created in 1965, was the first national program for preschoolers and today remains one of the most well-known programs, providing children with a diverse array of academic and social services. However, the effectiveness of Head Start and other preschool programs has been a somewhat controversial issue due to the fade-out effect. In 1985, a study involved the analysis of 200 separate evaluations conducted over a 20-year period of Head Start. The research revealed that Head Start participants showed some statistically significant effects on cognitive and socioemotional development; however, children experienced a frequent “fade-out” effect whereby their academic gains disappear at the end of the early elementary grades.

The Program’s fade-out effects suggest that these at-risk preschool experiences are not a panacea and that additional programming during the primary grades is necessary for these children to succeed in school. Programs such as at-risk preschool should only be expected to give children skills to take advantage of schooling. If the subsequent schooling is poor, it is unfair to say that the preschool program was ineffective. Follow-up support programs for children in poverty from kindergarten through grade 3, in addition to a one-year preschool program (however successful it may be), are absolutely essential.

7. Recommendations regarding the effectiveness of the project.

The At-Risk Preschool Program moderately improved the verbal ability of children who participated in the Program compared to a similar group of children who did not attend at-risk preschool, yet these moderate gains faded over time. The fade-out effect is thought to occur because of variation in quality among preschool sites and failure to provide follow-up programs in kindergarten through grade 3.

ADE has not yet developed the monitoring capacity necessary to ensure that all providers are implementing the Program with enough quality to bring about the expected impact. Based on the analyses provided in Finding IV (see pages 23

through 32), in order to improve and maintain the quality of the At-Risk Preschool Program, the ADE needs to:

- (a) Require all districts to follow the ECAC guidelines (i.e., public, private, and Head Start sites). This requirement should be included in the application language; and
- (b) Provide technical assistance to districts and especially to those districts who contract with nonpublic facilities. This would include instructions for oversight to ensure even performance across preschool sites.

Due to block grant funding, ADE has also not focused on ensuring that districts offer a comprehensive approach to serving at-risk children including follow-up support programs to maintain and build upon the gains made in at-risk preschool. We recommend that ADE encourage all districts who plan to operate an at-risk preschool to also implement follow-up programs using developmentally appropriate curriculum and practices for at-risk students in kindergarten through grade 3.

8. Recommendations regarding the continuation of the program.

The issue of whether to fund the At-Risk Preschool Program has already been somewhat decided by the creation of state block granting, which has eliminated specific funding for the Program. However, regarding continuation, given the “fade-out” effect found in this study and other national evaluations, continuation of the program without adequate quality assurance and follow-up support programs does not seem a prudent use of public resources.

Regarding future evaluations, three years’ worth of evaluations have provided a clear indication of what the Program is accomplishing, and our recommendations in this report have addressed the areas that need to be strengthened if the Program is to be made more effective. As a result, the Auditor General’s Office believes that evaluation resources would be better directed at other state programs and that continued annual evaluations of the at-risk programs should not be performed. Therefore, the Office recommends that the Legislature remove the statutory requirement (A.R.S. §15-715, Section 30) for annual evaluations of the At-Risk Program.

9. **Any other information or evaluative material that the auditor general determines to be useful in considering the programmatic and cost-effectiveness of the project.**

Statutory language changes, funding shifts, and a general lack of funding may affect program quality in the future.

Statutory changes—Statutory requirements that school districts collaborate with federal and private providers diminished implementation standards and limited accountability, which may ultimately affect program quality. Laws 1997, Ch. 231 §33 requires school districts and charter schools to allow at least 50 percent of At-Risk Preschool children to receive services from federally funded or private childcare providers. It also prevents districts from requiring that those providers follow the Early Childhood Advisory Council guidelines. These guidelines were originally developed to ensure programs met national standards for quality.

At-Risk funding diminished—Over time, monies dedicated to economically at-risk children have become a funding source for several programs in kindergarten through grade 3. Laws 1997 deleted the standard that children be economically at risk to receive enhanced kindergarten through grade 3 (K-3) services. Therefore, districts may chose to use their allocations elsewhere. This situation has already occurred. ADE documented that approximately half of the Early Childhood State Block Grant monies for school year 1997-98 will fund programs that serve all K-3 public school pupils in either full-day kindergarten or K-3 supplement programs.

Lack of funding may affect program quality—At-Risk Preschool has not been funded as well as other preschool programs, which may ultimately affect program quality. Literature shows that adequate funding is imperative to operate a quality preschool program. However, model preschool programs have typically been better funded than the Arizona At-Risk Preschool Program. For example, the Perry Preschool model recommends spending \$5,500 per child because the investment in preschool ultimately saves costs to society. The additional monies provide the means to extend the Program more hours per day or more days per year. Additional monies also enhance the quality of the caregiver-child relationship by keeping the child-staff ratio low and the caregiver's education and training levels high.

The Program has not been funded as well as the Arizona Head Start program or other state Head Start programs. For example, the Arizona At-Risk Preschool Program monies spent per child decreased from the amount of \$3,798 (including capital outlay) in 1996 to \$2,481 in 1997. In contrast, the Arizona Head Start Program monies spent per child ranged from \$3,360 in Maricopa County to \$5,615 in Mohave County during the 1995-96 school year.

Agency Response

December 19, 1997

Mr. Douglas R. Norton
Auditor General
2910 North 44 Street
Phoenix, AZ 85018

Dear Mr. Norton:

We appreciate the efforts by your staff in the evaluation of the At-Risk Preschool Program. Early Childhood Education and specifically this program is critical to success in future schooling. The Department views the Auditor General's Program Report as an objective assessment of the Program's strengths and weaknesses. As a result, program quality and accountability should be enhanced.

Our comments to your Report are listed below. We have organized the response into two sections: General Comments and Response to Findings.

General Comments:

While we support the recommendations for program improvement, the issues identified are primarily legislative in nature rather than one of departmental policy. The At-Risk Preschool Programs have experienced yearly legislative changes in each of the past four years. While program quality continues to be a focus of the Department, revisions in statute have restricted our authority to make program changes that would have contradicted legislative intent.

The Department did, however, strive to ensure program quality given these limitations. Monitoring and technical assistance was increased over the last year. Program evaluations conducted in 1996 & 1997 included on site monitoring by staff of 12% of the public sites and 12% of the private sites providing preschool. This is comparable to the number of sites evaluated by your staff. The intent was to evaluate an equitable number of sites, allowing for adequate representation in both public and private sectors. The results indicated that 75% of the 52 projects visited met all 12 components of the Early

Childhood Comprehensive Guidelines. These guidelines are indicators of quality programs.

In addition, the Department's oversight included evaluations of 174 public and private sites for program success based on the Early Childhood Comprehensive Guidelines. Of the sites evaluated, 44 were private and 130 were public. The results were used to identify the most 'NEEDY' programs and technical assistance was scheduled for those sites meeting less than 90% of the indicators of quality as found in the Guidelines. These were the 52 most needy sites visited in 1996-1997, where monitoring and technical assistance were provided. Program oversight also included application review, complaint investigation, and technical assistance to school districts, charter schools and private providers.

The Auditor General Report data also indicates that one third of private sites evaluated failed to use developmentally appropriate practices, as defined by the National Association for the Education of Young Children. Developmentally appropriate practices are recognized as an initial component of accreditation. With the program integration of these practices and the requirement that programs must be accredited, (effective June 30, 1998) quality experiences for Arizona's young children will be a reality.

Finally, the concerns cited in the Auditor General's Report regarding program quality at the private program sites have affected the overall impact of the program. We concur and as a result, the Department has drafted a recommendation for program improvement. Many aspects of this draft address the findings of the Auditor General's Report. The proposal is student centered. It emphasizes meeting the needs of individual students, providing academic support services through the primary grades, increased parent involvement and accountability. We believe that this will ensure program consistency and an integrated approach to early childhood education, while maintaining support programs well into the elementary grades.

If properly implemented preschool programs can have sustaining effects. Without accurate accountability structures, quality programming is unsure and impact on student learning is diminished. A recent article in Educational Leadership states, "No single policy or program can ensure the school success of every child, but a combination of approaches can."¹ This is the focus of the Department's preschool program proposal.

Response to Findings:

Finding I: At-Risk Preschool Children Show Moderate Improvement During Their Time in the Program.

We agree with the findings. Early intervention programs, such as the At-Risk Preschool Program, have the potential for significant success. Unfortunately, due to limited parental involvement and family literacy issues, continuity of support at home is not succeeding. As a result, the

¹ Educational Leadership, Vol. 55 No.4 Dec. 1997, pg. 8.

Department will continue to support family literacy linkages and improve the accessibility of education for parents.

Finding II: At-Risk Preschoolers Are Marginally Better Prepared in Kindergarten Than Similar Students Who Did Not Attend Preschool.

We agree with the findings. Student achievement results indicate success. Children who attend the At-Risk Preschool Program prior to attending kindergarten in school year 1996-1997 had marginally higher achievement scores in kindergarten than their at-risk counterparts who did not attend preschool. Children who participated in the Program were more likely to be performing at or above their chronological age level in kindergarten and were less likely to be performing below it than were at-risk children who did not participate.

Finding III: Program Effects Fade Over Time Without Follow-up Programs.

We agree with the findings. Program effects fade out over time without follow-up programs. This is consistent with national research, indicating that gains in student achievement gradually diminish by grade three without the support of supplemental programs.

Recommendations:

1. Recommend that all districts who plan to operate an at-risk preschool program also implement follow-up programs using developmentally appropriate curriculum and practices for at-risk students in kindergarten through grade three. In a kindergarten through grade three classroom using developmentally appropriate practices, children learn through active exploration in various learning experiences with each other, with adults and with a variety of materials. Furthermore, developmentally appropriate curriculum and integrated content areas help children build a foundation for lifelong learning.

Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

The Department will support the implementation of follow-up programs for students through third grade. For example, the Department will support legislation for Kindergarten through third grade supplemental programs, through initiatives program integration and quality could be realized.

The implementation of support programs will continue to be a strong focus. Through leadership in this area, the Department will provide

technical assistance to participating providers to address the uneven quality of sites. Although technical assistance to schools has included strategies to integrate preschool programs, transitional strategies and Kindergarten through third grade supplemental programs, increased implementation at the local level continues to be a need.

Finding IV: Private Sites Continue to Lag Behind Public Sites in Quality.

We agree with the findings. Private sites continue to lag behind public sites in quality.

In reference to program funding, it should be noted that Program allocations were based on formula requirements set through the legislature. The Department implemented the formula based allocations by following legislative direction (as referenced on page 31 of this Report).

Recommendations:

1. "Require all districts to follow the 12 Early Childhood Advisory Council Guidelines. This requirement should be included in the application language."

Response: The finding of the Auditor General is agreed to and a different method of dealing with the finding will be implemented.

The Department will support the Early Childhood Comprehensive Guidelines as an important part of quality program implementation. In addition the Department will propose to fund those services that require accreditation. Legislative support would direct the level of quality program accountability and provide the Department with the foundation to ensure program integrity is maintained.

2. "Provide technical assistance to school districts and especially to those school districts who contract with private and federal providers. This would include instructions for oversight to ensure even performance across preschool sites."

Response: The finding of the Auditor General is agreed to and the audit recommendation will be implemented.

While the Department has increased the technical assistance available to school districts regarding quality, (e.g., the Department increased on-site monitoring by 33% and evaluations with technical assistance by 98% in 1996-1997) there is a continued need for improvement. All participating programs have exhibited a limited increase in quality of operation (as indicated on Table 5 & 6 of the report). This

improvement, between 3% & 11%, indicates that there is continued program development.

Again, I thank you and your staff for your work. I am optimistic that the proposed improvements will strengthen the program.

Sincerely,

Lisa Graham Keegan
Superintendent of Instruction
Arizona Department of Education

APPENDIX A

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APPENDIX A

METHODOLOGY USED TO MEASURE EFFECTS OF THE AT-RISK PRESCHOOL PROGRAM ON CHILDREN

To gain a broad assessment of At-Risk Preschool, we looked at student performance at three points in time to determine: 1) immediate effects, 2) short-term effects, and 3) longer or four-year effects. True long term-effects could not be reported (i.e., high school graduation rates, welfare dependency, or those in the criminal justice system) because they were beyond the scope of this evaluation.

Immediate Effects

Data collected on 1996-97 at-risk preschool participants—All districts that participated in the 1996-97 At-Risk Preschool Program were requested to collect demographic and assessment information on all children the Program served. Data was to be collected and reported at two points: at children’s enrollment into the Program and when children exited from the Program. Participating districts were responsible for submitting all data to the Arizona Department of Education for data entry. The data collected included pre- and post-administration of the Peabody Picture Vocabulary Test (PPVT), which measures young children’s language and vocabulary development, and teachers’ evaluations of additional measures found to be critical to success in school. See Table 8, page a-iii, for Pre- and Posttest Mean Scores.

The Peabody Picture Vocabulary Test (PPVT) is designed to primarily measure a subject’s receptive (hearing) vocabulary. It is an achievement test since it shows the extent of English vocabulary acquisition. A second important function is to provide a quick estimate of one major aspect of verbal ability. It is a scholastic aptitude test, but not a comprehensive test of general intelligence as it only measures one important facet of general intelligence vocabulary. Though far from perfect, vocabulary is a good index of school success.

Additionally, student skills such as social/emotional and emergent literacy were assessed. Social/emotional “skill” represents that the child functions within a cooperative learning environment in which he or she works both independently and as a member of small and large groups. Emergent literacy means that the child is able to express himself/herself fluently with a variety of words and can understand an even larger variety of words used in conversation and stories.

Health and nutritional status were evaluated because these components directly affect children's ability to achieve social competence. Improving children's health and physical abilities includes teaching families appropriate steps to correct physical and mental problems and increasing their knowledge of and access to preventive health care. Additionally, adequate nutrition promotes children's sound physical, social and behavioral, and intellectual development.

Short-Term Effects

Data collected on kindergarten children in school year 1996-1997—Data were collected on kindergarten children who attended at-risk preschool during the 1995-96 school year. The research evaluated over 1,000 kindergarten children from 40 school districts by assessing their vocabulary (PPVT), social skills and behavioral development, gross and fine motor skills, emergent literacy, and problem-solving skills. In addition, the research examined parental involvement.

Data collected on kindergarten children who were not at-risk preschool participants—Data were also collected on kindergarten children who did not attend any type of preschool during the 1995-96 school year. The research evaluated the abilities of 330 children from 16 districts by using the same criteria as above. This group serves as the comparison group to the 1995-96 preschool participants. The first group is referred to as the “program group” and the second as the “non-program group.”

The purpose of the study was to examine how the Program impacted children it served. This was accomplished by assessing school readiness of the program group compared to the non-program group. Districts were chosen to represent program diversity around the State. We incorporated the following criteria: large, medium, and small districts, wealthy and impoverished districts, geographically diverse districts, and culturally diverse districts. Staff administered the PPVT, and kindergarten teachers assessed the skill level of each child in the study. Additionally, kindergarten teachers documented the extent of parental involvement.

Four-Year Effects

Data collection efforts target children's progress over time—Data were collected on children who attended the at-risk preschool pilot programs. These are the pilot programs that Arizona first began to fund in 1990. A total of 27 school districts operated at-risk preschool pilot programs prior to the expansion of the Program in the 1995-96 school year. The districts that operated at-risk preschool pilot programs from academic year 1990-91 through 1994-95 were requested to report academic information on the children since their participation in the At-Risk Program. Information was collected on 503 children who had participated in at-risk preschool programs in 11 districts. Follow-up information was completed

Table 8

**At-Risk Preschool Program
Peabody Picture Vocabulary Test
Pre- and Posttest Mean Scores
Years Ended June 30, 1996 and 1997**

	1996				1997			
	Standard Score	Mean Difference	Level of Significance	N	Standard Score	Mean Difference	Level of Significance	N
All children								
Pretest	83.8350				80.6147			
Posttest	89.2298	5.3949	<.001	805	88.3066	7.6919	<.001	2,443
Anglo children								
Pretest	89.9669				87.0000			
Posttest	95.5083	5.5413	<.001	242	94.7864	7.7864	<.001	632
Minority children								
Pretest	81.0799				78.3864			
Posttest	86.5666	5.4867	<.001	563	86.0453	7.6589	<.001	1,811

N = Number of children.

Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

for each year they attended school. Data collected provided for the examination of the connection between children’s participation in state-funded at-risk programs and their academic and social performance over time. Similar information was collected for a comparison group of children.

Data collected on 1990-91 through 1994-95 at-risk preschool participants—Schools that operated pilot at-risk preschool programs from academic year 1990-91 through 1994-95 were requested to report academic information on the children since their participation in the at-risk preschool program. Follow-up information on these children was completed for each year they attended school. Results from the State’s administration of the Stanford Achievement Test for over 500 children now in grades 3 through 5 were added to the data. Data reported included the districts’ assessment of essential skills and standardized test scores.

Data on a comparison group of children was collected—The comparison group consists of children who started kindergarten at the same time, at the same school as the children who attended the At-Risk Preschool Programs. Children who attended the same schools as the at-risk children could be assigned to the comparison group. Children were ran-

domly assigned to the comparison group without assurance that they matched the at-risk children on important background characteristics. The comparison group did not participate in the state-funded at-risk preschool program; however, districts were unable to report if these children attended another preschool program such as Head Start or a private program. Over 600 children serve as the comparison group. See Table 9 for national percentile scores.

Table 9
At-Risk Preschool Program
Average National Percentile Scores
on Nationally Norm-Referenced Tests
of At-Risk Preschool and Comparison Children ¹
Year Ended June 30, 1997

Grade ²	Test	<u>At-Risk Preschool</u>		<u>Comparison</u>	
		Score	N	Score	N
2	Language	28.6	20	21.6	62
	Reading	33.4*	46	24.8	77
	Math	35.1**	47	25.1	81
3	Language	34.9	361	36.4	299
	Reading	32.4	361	32.4	299
	Math	31.2	361	31.6	299
4	Language	35.4	111	34.4	213
	Reading	33.4	111	31.2	213
	Math	36.9	111	34.2	213

¹ To compare at-risk children to comparison children, read across the rows. Using the first group as an example, 47 at-risk children scored an average 35.1 on the grade 2 math test compared to 25.1 for the 81 children in the comparison group. To compare achievement over time, read down the columns. For example, the at-risk average math score decreased to 31.2 in grade 3 and the comparison group average score increased to 31.6.

² Grade 1 is not reported due to the small number of children.

* Significant at the .1 level.

** Significant at the .05 level.

N = Number of children.

Source: Auditor General staff analysis of data provided by the Arizona Department of Education.

Electronic database created and files matched to the Iowa Test of Basic Skills (ITBS) database—The ADE created an electronic data set from the data collected and submitted by districts. Child records in the data set were matched to child records in the state level 1995-96 Iowa Test of Basic Skills result data set and to the Stanford Achievement Test (Stanford) in school year 1996-97. The ITBS and Stanford mathematics, reading, and language total scores were added to the original data set for the records that could be matched. The measures included math procedures, math problem solving, language composition, prewriting, vocabulary, and reading. Low percentages of matches resulted from student mobility and the small number of children who are tested with norm-referenced tests in the primary grades. The matching process added information on standardized assessments beyond what the districts were able to report.

The ITBS and the Stanford Achievement Test were group-administered in grades 3 through 12. Developmental standard scores were used for all analyses and are comparable across test levels. Tests were administered under standardized procedures by school personnel. Consequently, test administration was independent of the intervention experiences received and the evaluation process.

These data collection efforts resulted in 361 children followed through grade 3, 111 children followed through grade 4, and 31 children followed through grade 5.

Small numbers of children are included in the analysis because many districts do not administer standardized tests in the early grades. Children in grades 1 and 2 are considered “off-grade,” which means they are not included in the state administration of the Stanford Achievement Test (Stanford). The small number of cases in grade 5 prevented us from drawing any final conclusions.

Other disadvantages of the research design include:

- A significant number of districts did not comply with the request to report information on students. The data set has no information for children from the pilot programs in the following school districts: Aquila Elementary, Balsz Elementary, Cedar Unified, Eloy Elementary, Indian Oasis Unified, Maricopa Unified, Mesa Unified, Osborn Elementary, Phoenix Elementary, Pinon Unified, Red Mesa Unified, Sanders Unified, Stanfield Elementary, Tuba City Unified, Tucson Unified, and Union Elementary. The data includes information on children from the following school districts: Creighton Elementary, Douglas Unified, Isaac Elementary, Murphy Elementary, Picacho Elementary, Roosevelt Elementary, Somerton Unified, Sunnyside Unified, Washington Elementary, Wilson Elementary, and Yuma Elementary.

- Differences in the characteristics of the comparison and at-risk group. The at-risk group includes significantly more children who do not speak English at home and includes a higher percentage of Hispanic children.
- Many children cannot be tracked because of high student mobility.
- The test information provided by the school districts is not in alignment or consistent for a longitudinal study. That is, schools used different standardized tests over time. For example, students took the ITBS/TAP norm-referenced test in school year 1995-96; the ASAP (Arizona Student Assessment Program) in 1994-95; and the Stanford Achievement Test, Ninth Edition, for the 1996-97 school year.

APPENDIX B

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APPENDIX B

SELECTED BIBLIOGRAPHY

Hart, C. H., D. C. Burts, & R. Charlesworth, (1997). *Integrated Curriculum and Developmentally Appropriate Practice: Birth to age eight*. New York: State University of New York Press.

McKey, R. H., L. Condelli, H. Ganson, B.J. Barrett, C. McConkey, & M.C. Plantz, (1985). *The impact of Head Start on children, families, and communities* (DHHS Publication No. OHDS 85-31193). Washington, DC: U.S. Government Printing Office.

Lee, V., & S. Loeb, (1995). Where do Head Start attendees end up? One reason why preschool effects fade out. *Education Evaluation and Policy Analysis*. 17(1), 62-82.

Natriello, G., E. L. McDill, & A. M. Pallas, (1990) *Schooling disadvantaged children: Racing against catastrophe*. New York: Teachers College Press.

Reynolds, A. J., (1994). Effects of a preschool plus follow-on intervention for children at risk. *Developmental Psychology*. 30(6), 787-804.

Schweinhart, L. J., and D. P. Weikart, (1993). Success by empowerment: The High Scope Perry Preschool Study through age 27. *Young Children*, 54-58.

Shepard, L. (1987). What doesn't work: Explaining policies of retention in the early grades. *Phi Delta Kappan*, 129-134.

Wehlage, G. (1995). *Building new futures for at-risk youth: Findings from a five year, multi-site evaluation*. The Center for the Study of Social Policy. Washington, D.C.

Wehlage, G., & J. A. White, (1995). Community collaboration: If it is such a good idea, why is it so hard to do? *Educational Evaluation and Policy Analysis*. 17(1), 23-38.

Zigler, E., & W. Berman, (1983). Discerning the future of early childhood intervention. *American Psychologist*, 38, 894-906.

Zigler, E., & S. Styfco, (1993). *Head Start and beyond: A national plan for extended childhood intervention*. New Haven CT: Yale University Press.

