Report of the
Joint Legislative Audit and Review Commission
To the Governor and
The General Assembly of Virginia

Virginia Preschool Initiative (VPI): Current Implementation and Potential Changes

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In Brief

Virginia Preschool Initiative (VPI): Current Implementation and Potential Changes

HJR 729 from the 2007 Session directed that JLARC conduct a study of Virginia's preschool program for at-risk four-year-olds, the Virginia Preschool Initiative (VPI). The study was to examine the implementation and impacts of VPI, as well as the concept of universal preschool, or making the program available to all children.

Multiple methods were used to assess VPI. JLARC staff found that VPI classrooms appear to provide a positive academic and social experience for children. VPI students do well in pre-kindergarten and kindergarten literacy tests. Kindergarten teachers report that the preschool programs for at-risk students in their schools are preparing children very well for kindergarten. A tracking system has recently been developed which should facilitate assessments in the future of longer-term outcomes for VPI graduates.

Virginia's focus of effort upon at-risk children appears appropriate. Options are considered in the report for potentially expanding VPI to serve more children. One of the options, a proposal made by the Governor, appears unlikely to serve as many additional children by 2012 as has been stated.

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This report is available on the JLARC website at http://jlarc.state.va.us

COMMONWEALTH of VIRGINIA

Joint Legislative Audit and Review Commission

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January 4, 2008

The Honorable Thomas K. Norment, Jr.
Chairman
Joint Legislative Audit and Review Commission
General Assembly Building
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Dear Senator Norment:

House Joint Resolution 729 of the 2007 General Assembly directed the Joint Legislative Audit and Review Commission to study the Virginia Preschool Initiative (VPI). Staff were specifically directed to review VPI's costs, implementation, and effectiveness, and to study the concept of universal preschool, among other matters. Findings of the study were presented to the Commission on November 13, 2007.

On behalf of the Commission staff, I would like to thank the Department of Education staff for their assistance during this study. I also would like to thank the school divisions, VPI program coordinators, elementary school principals, and kindergarten teachers who enabled site visits and responded to our surveys, as well as the University of Virginia for training staff in using the classroom rating instrument and for assistance with obtaining test score data.

Sincerely,

Philip A. Leone
Director

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Virginia Preschool Initiative (VPI): Current Implementation and Potential Changes

Key Findings

- Research indicates that a quality preschool experience for "at-risk" four-year-olds helps prepare them for school and can have long-lasting benefits. (Chapter 1)

- Some localities choose to not participate in the Virginia Preschool Initiative (VPI), and others do not fill all at-risk slots due to funding or space considerations, raising questions about equitable access for at-risk children. (Chapter 2)

- Local VPI programs largely comply with program requirements. VPI classrooms typically provide a positive learning environment, and student engagement with classroom activities is usually high. (Chapters 3 and 4)

- Test results indicate that VPI students gain in literacy skills during the pre-K year and outperform other kindergarteners. Longer term student-level data are needed to assess VPI's impact on test scores in later grades. A survey of kindergarten teachers and principals indicates that most at-risk pre-K graduates are well prepared for kindergarten and later elementary grades. (Chapters 5 and 6)

- Small adjustments could be made in State administrative support for VPI, but substantial increases may not be warranted unless VPI expands to include more private providers. (Chapter 7)

- Best estimates of annual per-pupil costs for a quality pre-K program in Virginia range from $6,790 to $7,920. Costs will need to be adjusted as compensation levels, support costs, or pupil-to-teacher ratios change. (Chapter 8)

- Regarding "universal" preschool, research suggests quality pre-K can be beneficial for children not at risk, but gains experienced by these children may be more limited. Virginia's focus on at-risk students appears appropriate. (Chapter 9)

- The Governor's proposal for expanding the scope of preschool for at-risk children is unlikely to serve as many children by 2012 as has been stated, particularly if the VPI per-pupil amount is not increased. Options for expanding VPI include using alternative revenue sources such as a sliding scale for parent fees (to further increase access while limiting taxpayer expense), incorporating a voluntary summer pre-K program, and requiring all school divisions to offer a pre-K program. (Chapter 10)

In the mid-1990s, the State established a pre-kindergarten program called the Virginia Preschool Initiative, or VPI. This program serves four-year-old children who are considered "at risk" of not doing well in school due to challenges such as coming from a family-in-poverty background. It serves such children who are not being

served by the federal Head Start program. The program furnishes preschool throughout the school year that is free of charge for the family. The costs of the program are funded by the State and local governments. According to information from the Virginia Department of Education (DOE), there were 12,224 full-day students and 277 half-day students served in 2006-07 in preschool classes with VPI support, or about 12,363 FTE students. DOE projects that 12,881 full-day and 367 half-day students are being served in 2007-08, or about 13,065 FTE students.

Virginia is one of 38 states supporting a preschool program which is focused on early learning to promote school readiness. Many states have implemented such a program because research indicates that a quality preschool program can improve the school-readiness and future educational and even life outcomes of at-risk children. However, although a few Virginia school divisions have assessed their programs, the quality and outcomes of the VPI programs across the State have been unknown.

Therefore, House Joint Resolution 729 from the 2007 Session directed that JLARC conduct a study of VPI. JLARC staff reviewed the literature on the impacts of quality pre-K upon at-risk children; assessed the statutory authorization, funding, participation levels, and implementation of the program; assessed its quality by considering compliance with program requirements and by using classroom observations, test score results, and a survey of kindergarten teachers and elementary school principals; and assessed State administrative support of the program and the costs of providing quality preschool. JLARC staff also examined universal pre-K programs in other states and identified potential options for expanding the pre-K program in Virginia.

This study provides a snapshot indication of VPI's implementation and quality, based on data that could be obtained given the available time and resources. The report does not address the use or expansion in VPI of public-private partnerships in any detail. The potential for expanding the use of these partnerships is currently being examined through some pilot projects that are underway in Virginia. Also, Virginia currently lacks a widely accepted definition of school readiness that is reported by VPI programs. In *Access & Quality*, an August 2007 document, the Start Strong Council (a working group on early childhood initiatives formed by the Governor) recommends that a definition be adopted and used in an annual school readiness report. Such a definition could be useful in future evaluations of VPI. Another element that would be useful for considering VPI's impact but which was beyond the scope of this review is the long-term tracking of VPI graduate outcomes, including tracking test scores. Critical information to facilitate this task has not been centrally collected, but will be collected by DOE

in the future. In addition, the role of parental involvement in the success of pre-K for at-risk children should be examined.

NATIONAL RESEARCH INDICATES THAT QUALITY PRE-K HAS POSITIVE IMPACTS ON AT-RISK CHILDREN

Hundreds of studies of immediate and short-term effects of early education and child care for socially and economically disadvantaged children show positive outcomes. Positive immediate and short-term effects include such measures of school readiness as early language, literacy, and mathematical development.

There is some debate over the longer term effects of these programs. But the weight of the evidence from key studies of quality preschool programs serving at-risk children indicates these programs can produce long-term positive effects on IQ scores, student achievement test scores, grade repetition, special education placement, high school graduation, and delinquency.

WHILE THE STATE HELPS SHAPE AND FUND VPI, THERE IS SUBSTANTIAL LOCAL CONTROL OVER IMPLEMENTATION

Although Section 22.1-199.1 of the *Code of Virginia* does not mention VPI by name, the section authorizes and addresses preschool for at-risk four-year-olds. For most of VPI's history, the program was smaller than Head Start, but beginning in FY 2005, the number of children enrolled in VPI has exceeded Virginia's Head Start enrollment.

From the inception of VPI, the State and localities combined have spent an estimated $570.7 to $607.1 million on the program, or an average of about $49 million per year. In FY 2007, more than $89 million was likely spent.

The program is shaped at the State and local level. The State sets certain minimum program requirements, determines the number of student slots it will help to fund in each participating locality, and determines the per-pupil cost amount. In FY 2007, the State-recognized cost for the program was increased from $5,400 to $5,700 per pupil. The State's per-pupil cost contribution, however, varies based on locality wealth, ranging from about 80 percent to 20 percent of $5,700 (see the following table). In localities that contribute more than is required of them to meet their per-pupil cost (because their costs are higher than $5,700), the State's contribution on a percentage basis is less because it does not acknowledge per-pupil costs above $5,700. Thus, a locality with high wealth and high costs may pay about 88 percent of their program cost.

Per-Pupil VPI Costs Borne by State and Localities Vary Based on Local Ability to Pay (Wealth) and Local Costs Above Minimum

	Low Local Wealth, Minimum Per-Pupil Cost[a]		Average Local Wealth, "Prevailing" (Typical) Per-Pupil Cost[b]		High Local Wealth, High Per-Pupil Cost[c]	
	Per-Pupil	Percent	Per-Pupil	Percent	Per-Pupil	Percent
State	$4,539	80%	$3,135	47%	$1,140	12%
Local	$1,161	20%	$3,556	53%	$8,660	88%
Total	$5,700	100%	$6,691	100%	$9,800	100%

[a] Based on Wise County's composite index of 0.2036.
[b] Assumes a composite index of 0.4500.
[c] Based on Alexandria City's composite index of 0.8000 and its reported per-pupil cost

Note: The composite index is the State's measure of local ability to pay, used in education funding formulas.

Local governments and educators have a substantial degree of control over implementation of the program. Locality participation is not mandated. In FY 2008, 18 localities are not participating in VPI, and eight school divisions, including the large divisions of Alexandria, Fairfax, Henrico, and Prince William, utilized less than half of their available VPI slots. With some localities choosing not to participate in VPI, and others filling less than half the number of available slots, there is a concern that the opportunity to access the program can be different for at-risk children living in different localities. Localities also vary in how they determine the children to be served by VPI, the extent to which student slots are filled, classroom facilities, program content, pupil-teacher ratios, and teacher compensation levels, among other factors.

VPI IS PROVIDING QUALITY PRE-K EXPERIENCES FOR AT-RISK CHILDREN

The quality of the VPI program was assessed through consideration of compliance with program standards, classroom observations, an analysis of test score results, and a survey of kindergarten teachers and principals.

VPI Meets Most Quality Standards, but Additional Standards Could Be Useful

It appears that school divisions are largely in compliance with the State's program requirements for VPI, which have been established both in statute and administratively. The types of standards required by the State are typically referred to as "structural standards" and include measures such as teacher education levels, maximum class sizes, and teacher-pupil ratios. Research differs on the extent to which these factors are linked to program quality. However, such standards may have a role in helping to establish a

baseline level of program quality, particularly if the VPI program is expanded to include more private and non-profit providers.

The VPI program already meets many of the structural standards advocated by early childhood organizations, in particular the National Institute for Early Education Research (NIEER) and the National Association for the Education of Young Children (NAEYC). However, it may be worthwhile to consider how and whether to address the following additional standards: encouraging bachelor's degrees for lead teachers, creating incentives for assistant teachers to obtain Child Development Associate degrees (CDAs), requiring annual evaluations of teachers, and requiring developmental assessments of children. Further, the State may want to consider whether such standards could be incorporated into Virginia's Star Quality Initiative, a voluntary quality rating and improvement system.

VPI Classrooms Appear to Provide a Positive Academic and Social Experience for Students

Overall, the VPI classrooms observed during the study provided a positive environment for student learning and development of social skills. There was evidence that activity time was balanced between intentional instruction and developmental play.

Classrooms were rated using a validated scoring instrument (CLASS) which focuses on teacher-student and student-peer interactions. Observation scores were typically in the medium- to high-quality range. The attribute which seemed to most negatively impact the climate of a classroom was excessive rigidity or control on the teacher's part. However, these classrooms were an exception relative to the prevalence of positive classroom environments.

VPI Students Do Well in Pre-K and Kindergarten Tests, but More Work Is Needed to Assess Longer Term Outcomes

Analysis of VPI student performance on standardized tests was another means used to assess the impact of the VPI program. These tests provide measures of a child's readiness and chances for success in school. Without the support that is provided in pre-K, it is anticipated that the academic performance of at-risk children would be worse than children not at risk. If VPI students are performing at levels close to, equal to, or exceeding other students, then it is reasonable to conclude that they have benefited from VPI participation.

Two instruments from the Phonological Awareness and Literacy Screening (PALS) assessment were used to analyze the impact of the VPI program on children's increases in literacy in preschool

and on their preparedness for kindergarten. The Standards of Learning (SOL) tests at the third and fifth grade levels in English and math were used to assess the longer term effectiveness of the VPI program.

Actual average scores on the spring PALS-PreK literacy test for VPI students were nearly 21 points higher than the predicted age-adjusted scores.

The PALS assessment for preschoolers (PALS-PreK), which measures preschoolers' developing knowledge of fundamentals necessary for literacy, is administered to students in the fall and spring of the school year. By comparing the average scores of the fall 2005 and spring 2006 assessments, the increase in literacy knowledge during the year can be estimated. For VPI students, the average PALS-PreK score increased from 32.2 in the fall to 60.1 in the spring. Because students are older when the spring test is administered, spring test scores are expected to be higher than in the fall even if the child were not enrolled in preschool. However, when controlling for the age of students, actual average scores on the spring test were still nearly 21 points higher than the predicted age-adjusted scores.

The PALS test for kindergartners (PALS-K) assesses children's knowledge in fundamental areas of literacy and provides a standardized measure of their preparedness for kindergarten. The PALS-K test is administered in the fall of the school year and is used as a means of identifying students who may need additional instruction. In fall 2006, 87,597 kindergartners were administered the PALS-K test, and 15,011 were identified for further instruction (that is, 17 percent of all kindergartners tested below the benchmark level for kindergarten preparedness). However, students who were in the VPI program the previous year fared much better, as only 11 percent were identified for further instruction.

The average summed PALS-K score in the fall of 2006 for VPI students was 58.7, compared to a score of 55.7 for non-VPI students.

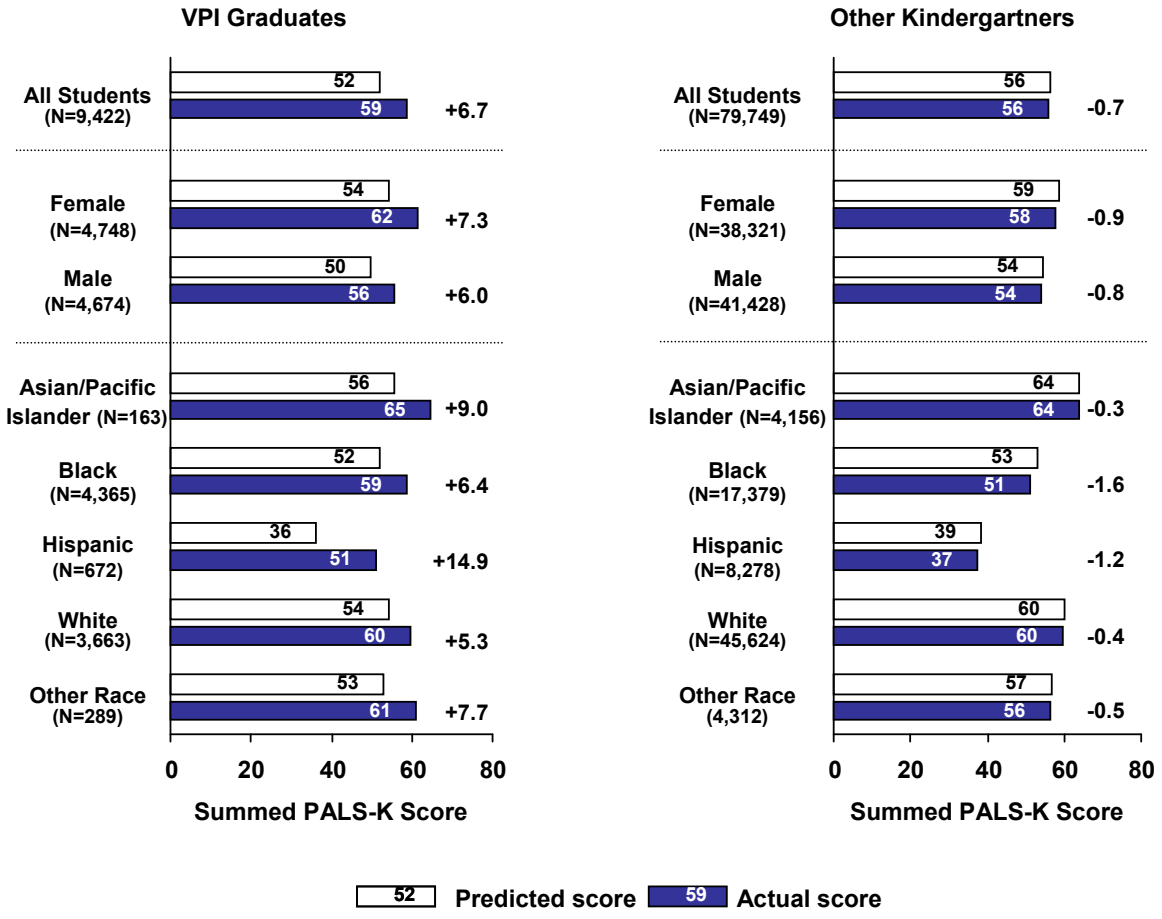
Another measure of student readiness is the summed PALS-K score. The average summed PALS-K score in fall 2006 for VPI students was 58.7, compared to a score of 55.7 for non-VPI students. The performance by VPI students on these tests is more impressive when it is considered that the VPI students are at-risk children who are in the program due to concerns about their prospects for succeeding in school. VPI students are primarily from low-income families with less education than middle- or upper-income families.

To control for differences in income levels, parental educational attainment, and other characteristics of VPI and non-VPI students, predicted PALS-K scores were developed using regression analysis. The regression analysis controlled for family income (measured by the percent of students in the school participating in the free or reduced price lunch program), parental educational attainment (measured by the percent of adults in the community with at least a bachelor's degree), age, gender, race/ethnicity, and whether or

not the student had special educational needs (such as living in a non-English speaking household or having a learning disability). Predicted PALS-K scores were then calculated for each student, and the predicted scores were compared against the actual scores.

Differences between mean actual and predicted scores by race/ethnicity are shown in the following figure. VPI students performed above expectations for both boys and girls and across all racial/ethnic groups while the mean actual scores of non-VPI students were slightly below expectations. Overall, the difference between predicted and actual PALS-K scores for VPI students was 6.7 points. The difference (or benefit) was most pronounced among Hispanic students. The average PALS-K summed score for Hispanics (including both VPI and non-VPI students) was 38.3. Hispanic students who were in the VPI program had an even lower predicted score of 36.1. However, the actual mean PALS-K score for

VPI Graduates Outperformed Other Kindergartners on Fall 2006 PALS-K Test



Source: Analysis of data provided by the University of Virginia, the Virginia DOE, and the U.S. Census Bureau.

Hispanic students from the VPI program was 51—an increase of 14.9 points or 41 percent above expectations.

JLARC staff also sought to analyze the longer term effects of VPI on school performance by examining third and fifth grade SOL scores. Statewide, SOL scores and pass rates at the third and fifth grade levels have increased substantially and with some consistency since the SOLs were first implemented and the first VPI graduates reached third and fifth grades. In examining the data, JLARC staff found that models based on poverty, parental educational attainment, and race are not as strong at predicting differences in SOL scores as they were five to seven years ago. The extent to which VPI has contributed to this result is not clear, as other factors may have had an impact.

At the time of the study, it was not feasible to track the great majority of individual students from preschool through later school years. Therefore, the analysis of third and fifth grade SOL scores was conducted at the school division level. In this analysis, the proportion of at-risk students being served by VPI did not appear to have a strong, consistent impact on average SOL scores or pass rates. However, the division-level nature of this analysis may not have allowed for the detection of differences. In a recent student-level assessment of 2007 third grade SOL scores involving more than 3,000 children who were known to have participated in a publicly funded preschool program, DOE found that the pass rates of these students was four to five percentage points higher than the pass rates of other economically disadvantaged students.

DOE has implemented a means of tracking preschool students by type of preschool attended beginning with students who attended preschool in the 2006-07 school year. This tracking mechanism, if implemented and monitored properly, will allow for better longitudinal studies of VPI in future years.

Kindergarten Teachers and Elementary Principals See At-Risk Pre-K Graduates Performing Well

JLARC staff surveyed kindergarten teachers about the readiness of graduates from their school's at-risk pre-K program. Respondents indicated that they see pre-K in general as a useful vehicle for preparing children for kindergarten academically and socially. With regard to pre-K graduates in their own classrooms, more than 70 percent of respondents indicated that these students were typically "very well prepared" for kindergarten.

Within the group of elementary school principals responding to a JLARC survey, the strong consensus is that their school's pre-K

programs helped to substantially increase the academic and social ability of the children.

SUBSTANTIAL INCREASES IN STATE ADMINISTRATIVE SUPPORT MAY NOT BE WARRANTED UNLESS VPI EXPANDS TO INCLUDE MORE PRIVATE PROVIDERS

The State's administrative or structural support for the VPI program is less than many other states. Virginia's State administrative support largely consists of one staff person providing technical support, two part-time consultants conducting site visits to local programs, and curriculum standards for what children should know and be able to do when entering kindergarten. However, a substantial increase in the level of State administrative support may not be necessary for the current VPI program. Most local programs are administered through the public school system, and approximately two-thirds of school divisions indicate that they are generally satisfied with the State support structures in place, though many indicate that increased communication among VPI programs would be helpful.

Some small adjustments in administrative support for the program could be made to support the existing VPI program and also State research needs. DOE staff indicate that the $20,000 per year funding for consultant site visits falls short of enabling the consultants to visit all participating divisions at least once in a two-year period and provides an inadequate amount of compensation for the services since the funding amount has not been updated in years. Increased funds for this very basic check of program compliance and quality may be warranted. Also, the information which DOE staff collect from VPI coordinators should include the names of schools with VPI classrooms, the number of classrooms in each school with VPI students, and the number of VPI-funded student slots in each school, so that this information is centrally available. Finally, DOE should work with VPI coordinators on developing a strategy or strategies to promote the sharing of VPI program experiences between school divisions, and request funding as needed for this purpose. Some divisions have noted that mechanisms are currently lacking to facilitate the exchange of information and ideas between local VPI programs. Information could be shared on matters such as specific activities that strongly engage the students in learning.

While the current level of State administrative support may be largely adequate for the existing program, a more substantial level of State support may be warranted if VPI is expanded to include many more providers outside of the public school system. A pilot project is underway to consider ways to expand the extent of private sector involvement in partnership with VPI. If the State significantly increases its level of administrative support, efforts

should focus on facilitating or supporting increased classroom observations and enhancing support for professional development. The performance of teachers in classrooms is largely undisputed as being linked to preschool program quality, and professional development is an area mentioned most frequently by school divisions where additional State administrative support would be useful.

COSTS FOR QUALITY PRESCHOOL ESTIMATED TO BE MORE THAN $5,700 PER PUPIL

State funding for VPI is based on a per-pupil amount of $5,700. However, there is concern that this amount is not adequate to provide a high-quality program. Many urban and suburban localities, which serve about three-quarters of VPI students, report that a $5,700 per-pupil cost is inadequate for achieving high quality.

Four possible ways are considered in the report for estimating the costs of high-quality preschool. Costs can be based on

- attaining parity with per-pupil spending on K-12 education in Virginia (yields an estimated per-pupil amount of $7,920 and State cost of $61.4 million);
- attaining unmet quality standards (yields an estimated $115,000 to $370,000 in the first year and $35,000 to $290,000 in subsequent years in additional State costs);
- cost reports from Virginia school divisions for providing high-quality preschool (yields an estimated per-pupil amount of $6,790 and State cost of $53.3 million); or
- most current and applicable estimates from national experts (yields an estimated per-pupil amount of $9,500 and a State cost of $74.6 million).

The best approaches to estimating quality preschool costs in Virginia appear to be (1) attaining parity with K-12 education in Virginia, and (2) the costs reported by Virginia school divisions as necessary to provide a high-quality program. Use of estimates from these methods could increase State costs by about $10 million to $18 million annually over the FY 2007 State funding level for VPI of $43.7 million (a percentage increase of 22 to 41 percent).

PRE-K CAN BENEFIT CHILDREN NOT AT RISK, BUT VIRGINIA'S FOCUS ON AT-RISK STUDENTS APPEARS APPROPRIATE

It appears that children not at risk would benefit from a quality pre-K program if it were extended to them. Evaluations of universal pre-K programs in other states indicate that participating children from both lower and higher income families generally have

better early literacy and math skills when they enter kindergarten because they attended these programs. Studies examining the effects of preschool on children from middle and higher income families indicate that attending preschool results in gains in academic test scores, although the gains may not be as large as those of more disadvantaged children. Further, some studies conclude that more disadvantaged children benefit more from pre-K programs than less disadvantaged children. Consequently, it appears that VPI's current emphasis on at-risk children places higher priority on the children who benefit the most from a pre-K program.

POLICY OPTIONS FOR EXPANDING THE VIRGINIA PRESCHOOL INITIATIVE

There are numerous policy options available to the State for expanding access to VPI. One option already proposed by the Governor is to expand the targeted population for VPI. Under the Governor's proposal, it is claimed that the program would more than double in size, with 29,000 children served at State and local expense by 2012. According to the administration, the proposal would add about $75 million per year in State costs once fully phased in.

A positive aspect of this proposal is that it continues and expands the State's focus on serving children who may be at risk and not prepared for kindergarten. However, the proposal is unlikely to result in as many additional children being served as has been stated. Given current State budget difficulties, the additional growth in State costs contemplated to fund the proposed growth in enrollment could be problematic. Another concern is that the cost for the proposal has been estimated based on an assumed per-pupil amount in 2012 that has not been sufficient to entice several large localities to fill all their VPI slots. The estimated cost for the Governor's proposal was built using a $5,700 per-pupil amount through 2012. There appears to be a funding cushion in the $75 million annual cost for the proposal that goes beyond paying for the projected number of slots using the State share of $5,700 per pupil, but how those extra funds would be used is unclear. In addition, the proposal's plan for expanded enrollment appears to rest upon addressing school space issues through a partnership with private pre-kindergarten providers, but funding is also a key obstacle for achieving greater participation.

Other policy options address the potential for expanding the VPI program into a universal pre-K program. These options include (1) using alternative revenue sources to help pay for the program, such as parent fees, (2) having a half-day versus full-day program, (3) having a summer pre-K program that lasts five weeks versus

the full academic year, and (4) requiring all school divisions to offer a pre-K program.

Under the parent fee approach, "at-risk" children would continue to receive VPI without their parents being charged. However, the opportunity to be part of VPI could be extended to children who are not at risk provided that the parents pay for a portion of the cost using a sliding scale based on income. This approach helps address an equity concern with the current approach, which is that children selected for VPI receive fully paid pre-K for a year while children who barely miss the VPI cutoff are not able to attend the program, and their parents do not receive any assistance with preschool costs. The parent fee approach also provides a way to extend pre-K more widely while reducing the cost increase to taxpayers.

Another option for moving to universal pre-K would be to offer half-day rather than full-day programs for the children who are not at risk. This approach could help reduce State governmental costs for the expansion, although local costs may not be reduced as much. The half-day approach would not be as beneficial for children from low-income families, however, as studies suggest that full-day programs benefit them more. In addition, use of half-day programs may reduce participation levels among children with working parents.

Another option would be to have a summer pre-K program available to children with no preschool experience. VPI for at-risk children would still operate during the school year; the summer program could be a supplemental opportunity open to other children, or it could also be offered to at-risk children. This would be another less expensive way of expanding pre-K opportunities.

A final option would be to require all school divisions to offer a pre-K program; this option would address concerns about equity of access. However, solutions would need to be found for space and funding problems in all localities. In addition, with the current approach, localities that voluntarily participate may be more committed to making the program succeed than localities that are forced to participate.

Chapter 1

Context for the Review of Virginia's Preschool Program

In Summary

Since the 1980s, most states have initiated programs that begin the school experience for at least some children prior to their entry into kindergarten. These preschool (or prekindergarten, also known as pre-K) programs typically serve four-year-olds (although some states also serve three-year-olds), and serve an eligible population of at least children from impoverished backgrounds who are considered to be "at risk" for poor performance in school. Several research studies have established that quality preschool programs can increase the success of at-risk students in school. A few states have expanded the scope of their preschool programs to also cover students who are not considered at risk. Virginia has a State-initiated preschool program which serves at-risk four-year-olds. The desirability and feasibility of expanding access to the program beyond the at-risk population as currently defined is being considered by State policymakers.

Over recent decades, there has been an increasing national focus on providing educational classroom experiences or programs for children who are not yet of kindergarten age, particularly four-year-olds. These classrooms or programs are often called "preschool" or "pre-kindergarten" (pre-K). Some of these programs are housed in day care centers. Preschool or pre-kindergarten venues that are outside of a day care setting such as within a school have also become increasingly available. Preschool or pre-kindergarten classrooms which are specifically targeted or designed for children from poverty or disadvantaged backgrounds (known as "at-risk" children) are often government-supported—for example, through federal Head Start and Title 1 funding, and support through various funding/program initiatives on the part of State and/or local governments.

In addition to federal government support for preschool, Virginia has a State-sponsored program, involving State grants with local match support, that is designed to make a pre-kindergarten experience possible for four-year-old at-risk children who are not served by Head Start. This program, established in the 1990s, is known as the Virginia Preschool Initiative (VPI). With this program, Virginia is one of many states supporting a program which has the following characteristics said to help differentiate State "preschool" or "pre-kindergarten" programs from day care or other child care programs:

- The program is supported by State-directed funding.

- The program is focused on early learning to promote school readiness and success.
- The program is aimed at pre-kindergarten children (usually four-year-olds, but sometimes three- or five-year-olds).
- The program is designed to provide group learning experiences at least several days of the week.

Many states have adopted such programs as research literature indicates that quality preschool or pre-kindergarten programs can improve the school-readiness and future educational outcomes for at-risk children. The research on this subject is sufficiently compelling that a general consensus appears to have been achieved across experts with different ideological perspectives.

However, whether Virginia has a quality program across the various Virginia school divisions has been unclear, as are program outcomes for the students. One of the criticisms of VPI is that evaluative information regarding the program is lacking. While a few school divisions have assessed their programs, the quality and outcomes of the VPI programs across the State are not known.

House Joint Resolution 729 from the 2007 Session (see Appendix A) directed that the Joint Legislative Audit and Review Commission (JLARC) conduct a study of VPI—the first assessment that is not focused on one locality. The resolution requires JLARC to assess the manner of implementation and the effectiveness of the Virginia Preschool Initiative. In addition, the study is to examine the issue of whether any changes are needed in the State's approach, including potential improvements to VPI or implementation of "universal" preschool or pre-kindergarten, an approach which would open up governmentally-supported pre-kindergarten classes to all four-year-olds (on a voluntary basis).

PRESCHOOL AS AN EDUCATION POLICY OPTION NATIONALLY AND IN VIRGINIA

During the 20th century, American education became more inclusive, in that an increasing proportion of the population progressed to higher grade levels. At the start of the prior century, only a relatively small and privileged group of students progressed much beyond the elementary school level. For example, in 1900, only ten percent of American youth between 14 and 17 were enrolled in high school, and about two percent of those between 18 and 24 were enrolled in college. Among Americans born shortly after 1900, less than one in five received a high school diploma, and only about one in 25 received a college degree. The proportions were similar in Virginia.

Among Americans and Virginians born toward the end of the century, more than three-quarters received a high school diploma, and almost three in ten received a college degree. Some researchers have concluded that the major American education achievement of the 20th century was the widespread expectation and achievement of a high school diploma.

While education in the country and in Virginia became more inclusive, with a much broader segment of society progressing to higher grade levels, it became clear that there were substantial disparities in academic outcomes among students. Substantial differences or "gaps" were being observed by researchers which appeared to relate to factors such as family income and race. Achievement gaps were observed to begin early, with middle- and upper-income children coming to school more prepared than lower-income peers. Information was also increasingly available suggesting that the provision of services to at-risk children prior to the start of school might help reduce this gap. Following the work of a committee of specialists, in May 1965 President Johnson announced Project Head Start. The program was designed to provide a comprehensive set of services to assist children in overcoming obstacles or deficits caused by poverty before they started kindergarten. When the program began, it was an eight-week summer program for children in low-income communities. In the first summer, more than 560,000 children were in Head Start preschool classes, and were also receiving medical care, dental care, and mental health services.

A dramatic increase in state government action on pre-kindergarten programs, however, did not take place until the 1980s and afterwards. As of 1970, for example, only seven states had taken any actions in the area of pre-kindergarten, and these actions mostly involved the supplement of Head Start funds with some state funding. Different sources have different accounts of state action from 1970 to 1980, but it is clear that the level of state government activity in the preschool arena prior to 1980 was minimal compared to the 1980s and 1990s. During the 1980s, 23 state programs began, and in the 1990s, 21 states started a program or adjusted the nature of their existing efforts. However, according to the *State of Preschool 2006* by the National Institute of Early Education Research (NIEER), there are still 12 states which do not have a state-funded pre-K program: Alaska, Hawaii, Idaho, Indiana, Mississippi, Montana, New Hampshire, North Dakota, Rhode Island, South Dakota, Utah, and Wyoming.

A paper on the status of preschool policy across the country notes that action by the various states was

> …driven by different forces over time, but all related in some way to early learning and success. In the 1960's and

> 70's the primary motivation was giving low-income children a Head Start. In the 1980's, education reform was the driving force, propelled by reports like *A Nation At Risk*, along with research reports of positive results from longitudinal studies of preschool interventions like the Perry School Project, Abecedarian, and others. In the 1990's states were influenced by the National Education Goals, school readiness concerns generally and, more recently, by advances in neuroscience (e.g., the connection between healthy brain development in young children and their capacity to learn). (*Blank and Mitchell, 2001).*

In Virginia, the preschool issue was prominent in an October 1986 report of the Governor's Commission on Excellence in Education; however, the report's recommendation on the subject did not address the question of the State's role in helping to establish preschool programs. The commission's report, *Excellence in Education: A Plan for Virginia's Future*, stated that "Virginia has a good school system," but also noted that "a dramatic disparity has existed among Virginia's schools since the inception of a mandatory system of public free schools..." To "strike at the heart of the problem of the dangerous gap between educational have and have-nots in Virginia," the commission's first recommendation was for "Virginia's school divisions" to "provide voluntary developmental preschool programs for four-year-old children." The commission called for the availability of such programs for at-risk four-year-olds by September 1988 and for all four-year-olds by September 1992.

In support of its recommendation, the 1986 commission report quoted from Dr. David Weikart, founder of two of the most important studies of the long-term effects of early childhood (the High-Scope Perry Preschool Project and the High/Scope Curriculum Comparison Project). Dr. Weikart said that scientific longitudinal studies have shown that "good preschool programs for at-risk children help prevent school failure" and can improve the performance of at-risk children "from the elementary level through the secondary level."

Five years later, the Governor's Commission on Educational Opportunity for All Virginians also addressed the preschool issue. This 1991 commission's final report noted:

> In implementing the recommendation of the [prior] Commission on Excellence, the Department of Education initiated eight pilot four-year-old programs in 1987. By 1989-90, a total of 11 school divisions were participating in these pilots. Both federal (Chapter I) and local funds were used to implement these programs, and children were selected for participation based on...economic need...and educational

> need.... During the first two years of the study, the children participating in these pilot programs demonstrated significant cognitive gains from entrance to the end of the year.

The 1991 commission indicated that it was important to "emphasize successful first-time learning rather than costly and questionably effective remediation," and consequently recommended that

> …the Board of Education and the General Assembly, in consultation with the Council on Child Day Care and Early Childhood Programs, provide in the Standards of Quality for preschool developmental programs for at-risk four-year-olds in all divisions by 1995. Divisions would be required to make these programs available but students' participation in them would be decided by their parents or guardians. This should be accomplished through an array of public and private providers, center-based and home-based options, and funding sources.

However, the 1991 commission did not echo the prior commission's call for the program to be expanded beyond at-risk children. The 1991 commission noted that "although the findings of the Perry program are encouraging, experts warn against extending conclusions beyond low-income children," and noted that "high-quality, private preschool programs are already operating within the Commonwealth," serving children "primarily from upper- to middle-income families whose parents can afford to pay the tuition and fees associated with them."

In 1993, the Virginia Board of Education, the Virginia Department of Education (DOE), and the Virginia Council on Child Day Care and Early Childhood Programs developed a report entitled *A Study of Programs Serving At-Risk Four-Year-Old Children*. The report first grappled with the definition of preschool which would be used in the study, noting that the term is often used interchangeably with other terms such as child care, day care, or pre-kindergarten. The report decided that for its purposes, a quality preschool program for at-risk children would be defined as

> an early childhood program provided for children before their entrance to kindergarten, which meets established quality criteria and which provides five major services—education, health, parent involvement, social services and transportation.

The report included the following findings:

- Investing in quality preschool programs represents a successful prevention strategy.
- An estimated 21,222 Virginia four-year-olds were "at risk."
- With the Commonwealth not providing funding specifically for at-risk four-year-olds, about 48 percent of at-risk children were being served in programs funded with federal Head Start and Chapter I (ESEA) funds (about $47 million).
- About 52 percent of at-risk children, or 11,145, were not being served.
- "There is no central data base tracking all the funding streams or demographic information on at-risk children or the quality of the programs"; information is "either nonexistent, or inconsistent as well as scattered among agencies."

The report recommended that "the General Assembly should fund a grants program to enable localities to provide quality preschool programs for at-risk four-year-old children currently unserved." The study was presented to the Senate Finance and House Appropriations Committees. In 1994, the Legislative Commission on Equity recommended that the State establish and fund a Virginia Preschool Initiative program.

The 1995 General Assembly then passed House Bill 2542 (see Chapter 852, 1995 Acts of Assembly) establishing a preschool grant program for unserved at-risk students which became known as the "Virginia Preschool Initiative" (VPI). The act acknowledges the 1993 study's definition of quality preschool by stating that the grants should be used to fund programs that include "quality preschool education, health services, social services, parental involvement, and transportation." The Department of Education, in cooperation with other agencies, was instructed to develop quality guidelines for the program that would be "consistent" with the findings from the November 1993 study. Funding for the program was first provided in FY 1996, and VPI has been funded and operated in each fiscal year since that time.

Currently, VPI is one of several government-sponsored educationally-oriented programs for young children operating in Virginia. Other programs include Head Start/Early Start, Title I Preschool Programs, and Early Childhood Special Education. Head Start provides comprehensive child development programs for children from infancy to age five. There are 54 Head Start and Early Head Start programs operating in Virginia, of which 22 are operated by community action agencies, and 32 are operated through school districts or child care centers or non-profit organizations. Title I funding is available to provide preschool in high-poverty schools.

Early Childhood Special Education provides special education services for students between three and five years old. More detail on these programs, especially VPI, is provided in Chapter 2.

NATIONAL RESEARCH INDICATES THAT QUALITY PRE-K HAS POSITIVE IMPACTS ON AT-RISK CHILDREN

Definition of "At Risk"

"At-risk four-year-olds" are most often defined as being from families whose income is so low that they would qualify for free lunches. The definition may also include additional factors, such as a single-parent family; the parents' having a low level of educational attainment or with chronic illness; a family under stress as evidenced by episodes of violence, crime, underemployment, unemployment, homelessness, or incarceration; a child with health or developmental problems; and a child who is an English language learner.

Most of the research literature indicates that high-quality preschool programs can have positive effects for at-risk four-year-olds. ost of the literature addresses immediate or short-term effects (often using measures of school readiness), although some studies also address longer-term effects.

Quality Preschool Programs Can Be Effective in Preparing At-Risk Four-Year-Olds for School Readiness and Success

One of the most prolific academic voices on preschool is W. Steven Barnett of the National Institute for Early Education Research (NIEER) at Rutgers University. After reviewing hundreds of studies of immediate and short-term effects of early education and child care for socially and economically disadvantaged children, Barnett (2002) concluded:

> Often there is no dispute about whether programs have immediate or short-term effects on children, but there are disputes about the meaning or importance of the observed effects and whether they persist or result in other long-term effects that are more consequential.

Furthermore, he found many studies showing that quality pre-kindergarten education for disadvantaged children greatly increased their verbal and mathematical abilities and school readiness. But he also found that studies of child care and pre-kindergarten programs that did not emphasize cognitive and social development did not show such strong short-term effects.

In a December 2005 paper, Barnett and colleagues reported on the effects of state pre-kindergarten programs on young children's school readiness in five states: Michigan, New Jersey, Oklahoma, South Carolina, and West Virginia. The programs in Michigan, New Jersey, and South Carolina targeted at-risk children, while the program in Oklahoma was universal, and West Virginia's was universal in most school districts in the state ("universal" means that the programs were available to all, regardless of income level or other characteristics). The researchers found the state-funded preschool programs to have statistically significant and meaningful impacts on children's early language, literacy and mathematical development, with some evidence of an enhanced program ef-

fect for print awareness skills for children in low-income families. Specifically, they found

- State-funded preschool programs produced an increase in children's vocabulary test scores. This improvement translates into an additional four months of progress in vocabulary growth due to the preschool program. This outcome is particularly important because the measure is strongly predictive of general cognitive abilities.
- Children who attended state-funded preschool scored higher on a test of early math skills. Skills tested include basic number concepts, simple addition and subtraction, telling time and counting money.
- State-funded preschool had strong effects on children's understanding of print concepts. Children who attended a state-funded preschool program before entering kindergarten know more letters, more letter-sound associations, and are more familiar with words and book concepts.
- No significant differences on children's phonological awareness were found, but this finding could be due to problems with the measure used. There appeared to be a "ceiling effect," in which children on average appeared to perform well on the test, with or without the preschool program.

A 2001 study (by Gilliam and Zigler at the Yale University Child Study Center) examined all evaluations of the state-funded preschool programs that had been done by 1998. Of the 33 state preschool programs that were in existence at the time, 13 had completed a formal evaluation of the program's impact on child outcomes. Although they identified various methodological flaws in some of the studies, they reported "the pattern of overall findings may offer modest support for positive impacts in improving children's developmental competence in a variety of domains." Most of the significant impacts that were found were in kindergarten and first grade. Therefore, they conclude

> [S]tate-funded preschool programs may help children enter school with a greater level of developmental competence....Research over the past forty years has provided ample evidence that high-quality preschool programs can produce meaningful effects for low-income children. More attention, however, must be paid how to best achieve and sustain high-quality preschool services during broad implementation (such as with state- and federal-funded programs) and how to best evaluate these programs.

Some Researchers Suggest Preschool May Be Associated With Some Increases in Negative Behavior

Some of the literature argues that formal early education can be emotionally detrimental to children younger than age six or seven. For example, David Elkind has written that by attempting to teach the wrong things at the wrong time, early instruction can permanently damage a child's self esteem, reduce a child's natural eagerness to learn, and block a child's natural gifts and talents.

A 2004 study (by Magnuson, Ruhm and Waldfogel) discussed both positive and negative short-term effects of pre-kindergarten on school readiness. They found pre-kindergarten participation to be associated with significantly higher reading and math skills at school entry, like many other researchers. However, they also found that children who attended preschool (more broadly defined) for longer hours had more behavior problems on average than those who did not, although this pattern did not hold true among the children who attended pre-kindergarten programs in the same schools where they attended kindergarten. Even more confusing, though, was that the absolute levels of aggressive behavior found in this study were typically quite low and levels of self-control were quite high, even for children who attended preschool. (Behavior problems were measured by how frequently a child fights, argues, gets angry, acts impulsively, or disturbs ongoing activities. Self-control was measured by how frequently the child respects the property of others, controls his or her temper, accepts peer ideas for group activities, and appropriately responds to peer pressure.)

A 2005 study (by Loeb, Bridges, Bassok, Fuller and Rumberger, from the Stanford University and University of California at Berkeley PACE Research Center) also suggests an association between preschool attendance and later behavioral problems when entering kindergarten. This study found that children who attended preschool at least 15 hours a week were more likely to display more negative social behaviors, such as acting up or having trouble cooperating, than their peers. Those patterns for former center-based preschoolers were the strongest among low-income black children and white children from high-income families.

Several Studies Indicate That Preschool Programs for At-Risk Four-Year-Olds Can Have Positive Longer-Term Impacts

Several studies provide strong evidence that early childhood interventions for at-risk children can have significant positive longer-term effects. However, the content of each program varies, and different groups of disadvantaged children are targeted, making it initially difficult to generalize about what works for which type of children. In other words, these programs may include activities

which would not be part of a state-run pre-kindergarten program for at-risk four-year-olds, such as VPI.

The best research studies are designed so that a conclusion can be drawn with confidence that the results obtained are due only to the intervention. Generally, the strongest research design involves identifying a pool of potential participants and then randomly assigning some children to an experimental group and some to a control or comparison group. This practice increases confidence that estimated effects (such as differences in test scores) are due to the program rather than to preexisting differences between program and comparison groups.

Among the studies with strong research designs, the three most-frequently discussed early childhood intervention programs are the High/Scope Perry Preschool Program, the Abecedarian Project, and the Chicago Child-Parent Center Program.

Studies of four other programs also provide strong evidence that early childhood interventions (that include a center-based early childhood education component) can have long-term effects on at-risk children. Studies of all of these seven programs included a control or comparison group of children not receiving the intervention services, so that comparisons could be made with the group of children receiving the treatment services.

High/Scope Perry Preschool Program. This program operated from 1962 to 1967 in Ypsilanti, Michigan. The program targeted black children who were living in poverty and had IQs in the range of 70 to 85. They were deemed to be at risk for "retarded intellectual functioning and eventual school failure." Children had one or two years of half-day preschool for seven months a year. The school-year program emphasized learning through active and child-initiated experiences rather than through directed teaching. Teachers conducted part-day, daily classroom sessions for children and weekly home visits. Children had to have a parent home during the day.

Data were collected annually for these children at ages three through 11, and then at ages 14, 15, 19, 27, and 40. Compared to individuals assigned to a control group, former preschoolers

- at age 14 scored significantly higher on tests of basic achievement;
- had a significantly lower rate of becoming teen parents;
- graduated regular high school at a significantly higher rate;
- at age 19 had a significantly higher rate of employment, had been employed for more months since leaving school, and had

more total months of employment the year in which they turned 19;

- at ages 27 and 40 had higher earnings; and
- by age 40 had been arrested significantly fewer times.

Abecedarian Project. This program operated in North Carolina from 1972 to 1985. The targeted population was black children from low-income families who were at risk for developmental delays and school failure. Children entered the program at an average of 4.4 months of age, so the program was serving infants and toddlers, as well as four-year-olds. The program provided high-quality, educational day care eight hours a day, five days a week, year-round. It featured a curriculum that addressed cognitive, social and emotional, and linguistic development. Teachers had bachelor's degrees, and there was a low child-to teacher ratio. The program involved both a preschool component and a school-age component.

Outcome data on all children were collected over two decades, with studies conducted at ages 12, 15, and 21. Compared to the control group, children who participated in the program had

- higher cognitive test scores from the toddler years to age 21;
- smaller proportions of children repeating a grade or being placed in special education;
- higher academic achievement in both reading and math from the primary grades through young adulthood;
- lower frequency of becoming teen parents; and
- more years of education and greater frequency of attending a four-year college.

Chicago Child-Parent Center Program. The Chicago Child-Parent Center Program has been in operation since 1967. This program included children from low-income families in high-poverty Chicago neighborhoods. Children were ages three to nine. Children in the program were provided with comprehensive educational and family support services. The program focused on developing skills in reading, math, and communication. The centers operated during the school year through the Chicago public school system and were located in elementary schools. The preschool provided a structured part-day program for children ages three and four. Related program services continued after kindergarten entry and through grades 1, 2, or 3. Many children received tutoring in reading and math until the third grade. The program also included home visitation by the staff, and provided health screening, speech therapy, nursing, and meal services. The parent program included a parent

resource room with educational workshops, reading groups, and craft projects. Parents volunteered in classroom, attended school events and field trips, and were assisted in completing high school.

Follow-up outcome data were collected for all children at ages 6, 9, 10, 11, 14, and 21. Relative to the comparison group, participants had a

- higher rate of high school completion,
- lower rate of juvenile arrest,
- lower rate of arrest for violent crimes,
- lower frequency of repeating a grade or placement of special education, and
- lower rate of child maltreatment.

The other four programs and study findings regarding long term effects are shown in Exhibit 1. The studies of these programs are also considered to have strong research designs (meaning their results are less subject to alternative explanations).

Other research from large-scale public early childhood education programs shows long-term effects that are similar to those of the seven studies regarding elementary and middle school achievement and school success. This research include studies of large-scale programs such as the Cincinnati Title I preschool, the Maryland Extended Elementary Pre-K Program, and the Michigan School Readiness Program.

However, studies of these large-scale programs cannot use random assignment to construct a comparison group (usually because members of the target population cannot be randomly denied access to the program). Instead, researchers construct a comparison group either (1) by matching as closely as possible members of the comparison group with members of the treatment group on a number of characteristics thought to be relevant (for example, parental education, family income level, ethnic or racial background); or (2) by using statistical techniques to control for initial differences on key characteristics. Unfortunately, in neither approach is it possible to know with certainty that all of the key characteristics were matched or controlled for. Therefore, random assignment, which presumably equalizes the groups initially, is generally thought to be the most rigorous methodological approach. However, information from other studies may be used to supplement the information from experiments using random assignment, especially if their findings are consistent with those of the experiments.

Exhibit 1: Other Programs Provide Strong Evidence of Long-Term Effects of Preschool on At-Risk Four-Year-Olds

Syracuse Family Development Research Program (FDRP)
The FDRP operated in Syracuse, New York, from 1969 to 1976.
Who. Targeted young, black, single, low-income mothers who were in the last trimester of their first or second pregnancy. Services targeted to children began prenatally and lasted until children reached elementary school age.
What. Weekly home visits by paraprofessionals, parent training, individualized day care, and structured preschool.
Long-Term Effects. Follow-up data were collected from children at ages five, six, and 15. Compared to children in the control group, participants had

- higher IQ scores
- more positive behaviors
- (among girls) better grades, attendance, and teacher ratings.

Infant Health and Development Program (IHDP)
The IHDP operated in eight medical institutions throughout the United States from 1985 to 1988.
Who. Targeted low-birthweight, premature infants upon discharge from the neonatal nursery until 36 months of age.
What. Comprehensive intervention consisting of early childhood development programs and family support services tailored to reduce the prevalence of health and developmental problems among low-birthweight, premature infants. Provided home visiting, parent group meetings, and a center-based child development program for children.
Long-Term Effects. Follow-up data were collected from children at ages three, five and eight. Compared to children in the control group, participants had

- higher IQ and achievement test scores
- fewer behavior problems.

Early Training Project (ETP)
The ETP was implemented from 1960 to 1964 in Murfreesboro, Tennessee.
Who. Demonstration project that served a cohort of children born in 1958 from low-income families.
What. Designed to improve the educability of young children. Consisted of a ten-week summer preschool program for the two or three summers prior to first grade and weekly home visits during the remainder of the year.
Long-Term Effects. Follow-up data were collected from children at ages three through 11. Compared to children in the control group, participants had

- higher IQ and achievement test scores
- fewer placements in special education
- (among girls) fewer teen pregnancies.

Head Start
Head Start is a federally funded program initiated in the 1960s. There is no single Head Start program model and programs exist in all 50 states.
Who. Targets children ages three to five from low-income families.
What. Community-based preschool program with an overall goal of increasing the school readiness of eligible young children. Head Start preschools, operating either part- or full-day, provide a range of services, including early childhood education, nutrition and health services, and parent education and involvement.
Long-Term Effects. Follow-up data were collected in several studies from participants at ages three through six, 10 through 16, and 18 through 30. Compared to individuals in the control group, participants had:

- higher IQ scores
- mixed achievement test scores
- fewer instances of repeating a grade
- higher frequency of immunizations and other positive health behaviors.

Sources: See Appendix E for full citations.
FDRP: Honig. & Lally. (1982); and Lally, et al. (1988).
IHDP: Infant Health and Development Project (IHDP), (1990); McCormick et al. (1991); Ramey et al. (1992); McCormick. et al. (1993); Brooks-Gunn, J., McCarton, C. M., Casey, P. H., McCormick. M. C., Bauer, C. R., Bernbaum, J. C., Tyson, J., Swanson, M., Bennett, F. C., Scott, D. T., Tonascia, J. & Meinert, C. L. (1994); Brooks-Gunn, J., McCormick. M. C., Shapiro, S., Benasich, A. A. & Black, G. (1994); McCarton, et al. (1997); and Hill et al. (2003).
ETP: Gray & Klaus (1970); Gray & Ramsey (1982); and Gray et al. (1982).
Head Start: Currie, J. & Thomas, D. (1995); Currie, J. & Thomas, D. (1999); Aughinbaugh, A. (2001); Garces, et al. (2002); and Abbott-Shim et al. (2003).

The weight of the evidence from key studies of preschool programs serving at-risk children indicates these programs can produce long-term effects on IQ scores, student achievement test scores, grade repetition, special education placement, high school graduation, and delinquency. Of course, the results appear to depend on the quality of the preschool program and other services provided. Even though most of the large-scale programs served children part day for one school year at age four (in contrast to some model programs which served children full day for multiple school years, and provided other services as well), the results of studies of large-scale programs appear to be consistent with those of experiments evaluating more intensive model programs.

In general, there appears to be some variation in the long-term effects of preschool for children from low-income families. Barnett has speculated that perhaps the best predictor of the size of program effects may be the size of the gap between the program and (initially) the home as learning environments, rather than whether a child is a member of a particular group. One possible exception to this general rule is gender. Experimental studies of model programs (including Abecedarian, Perry Preschool, and the Early Training Project) found larger effects on achievement test scores for low-income girls than boys, though the differences were not statistically significant. Two of these studies (Perry Preschool and Early Training Project) found that graduation rates were higher for girls than for boys. But results of the quasi-experimental studies of model programs are less consistent with this finding, and none of the large-scale studies which explicitly tested for gender differences found any.

One point that experts frequently note is that to produce good results, the pre-K program must be of good quality. Therefore, a key question for any state's pre-K effort is: What is the quality of the program?

JLARC REVIEW AND RESEARCH METHODS

Using the study mandate as a guide, the primary focus of this report is upon addressing the manner of VPI's implementation, the quality of the program and its impact in helping at-risk students attain school-readiness and positive future educational outcomes, the application of "universal" preschool in other states and its suitability for Virginia, and options for potentially expanding VPI.

The primary research methods included a review of the research literature on at-risk preschool and universal preschool; interviews with DOE staff and other experts; an assessment of VPI program requirements in light of national standards; observations of classrooms in a subset of school divisions; surveys of kindergarten

teachers, elementary school principals, and school divisions; and analyses of pre-K and kindergarten literacy tests and third and fifth grade Standards of Learning (SOL) for potential VPI impacts. Appendix B contains more details on the research methods employed.

It was important to use multiple methods to assess VPI because each method has strengths and weaknesses. For example, program requirements can help promote quality if appropriate or weaken a program if unreasonable, and therefore it is useful to review these requirements. However, compliance with program requirements, often referred to in the early childhood education field as "structural standards," does not guarantee program quality. The observation of classrooms is considered by experts in the field to be an excellent means of assessing quality. However, while time and resources did permit the visitation of a diverse group of divisions in urban, rural, and suburban settings and in different parts of the State, the group of divisions selected had to be a small subset relative to the total number of divisions in the State. Test score data help assess the academic skills or content knowledge gained by students, but the data do not address other skills such as social skills and fine and gross motor skills. Through a survey, kindergarten teachers are in a position to note the apparent academic and social preparedness of VPI graduates who enter their classrooms as well as their subsequent classroom performance. However, there is a subjective element to this appraisal, and it is not certain that non-respondents have the same perception. The use of several methods, however, provides an opportunity to see the extent to which the findings about VPI's quality appear to converge upon an overall conclusion.

The report provides a snapshot indication of VPI's implementation and quality, based on data collectable within the time and resources of the review. The report does not address the use or expansion in VPI of public-private partnerships in any detail. The potential for expanding the use of these partnerships is currently being examined through some pilot projects that are underway in Virginia. Also, at this time Virginia lacks a common definition of school readiness that is widely accepted and reported by VPI programs. In *Access & Quality*, an August 2007 document, the Start Strong Council (a working group on early childhood initiatives that was formed by the Governor) recommends the adoption of such a definition and its use in an annual school readiness report. This approach could be a useful in future evaluations of VPI performance. Another element that would be useful for considering VPI's impact but which was beyond the scope of this review is the long-term tracking of VPI graduate outcomes, including tracking test scores and other measures of success. Critical information to facilitate this task has not been centrally collected, but will be collected

by DOE in the future. In addition, more attention could be given in the future to the role of parental involvement in at-risk pre-K success and the impact of pre-K program staff who focus on fostering parental involvement.

Chapter 2

VPI Authorization, Funding, Participation, and Implementation

In Summary

Section 22.1-199.1 of the *Code of Virginia* authorizes and addresses preschool for at-risk four-year-olds (and at-risk five-year-olds not eligible to attend kindergarten). The Virginia Preschool Initiative (VPI) serves children who are not being served by Head Start, and its enrollment now exceeds Head Start's enrollment in Virginia. Since the inception of the program in FY 1996, the State and the localities combined have spent an estimated $589 million, or an overall average of about $49 million per year. In FY 2007, an estimated $89.5 to $95.0 million was spent, or an average of between about $7,239 and $7,684 per pupil from State and local sources.

Locality participation in VPI is optional. Participation increased between FY 2004 and FY 2007 from 75 to 100 localities (18 localities still are not participating in FY 2008). In all but six of the participating localities, the school division is the lead agency for the program. Participating localities and educators in those localities have substantial latitude in implementing VPI. For example, local programs differ in the criteria determining which students have priority to be served, the extent to which VPI slots are filled, classroom settings, extent of use of various learning formats, daily schedule, curriculum, and teacher compensation. The fact that some localities do not participate, and others do not fill a substantial portion of available at-risk slots, raises some questions about the equity of access for at-risk children.

The Virginia Preschool Initiative (VPI) program is shaped at the State and local levels. The program is authorized by State statute. The State determines how many student slots it will help to fund in each participating locality and the per-pupil amount toward which it will contribute. The State also has certain minimum requirements for local participation in the program.

Still, local governments and local educators have a substantial degree of control over local implementation. Localities may choose to participate or to decline participation in the program. Local circumstances and choices impact the factors given priority in determining the children to be served by the program, the extent to which student slots are filled, the facilities in which VPI is provided, the extent to which various instructional formats are utilized, the daily schedules, program content and curriculum scope, whether to lower class sizes and pupil teacher ratios from maximum standards, and teacher compensation levels.

VPI STATUTORY AUTHORIZATION

The statutory authorization for VPI is contained in §22.1-199.1 of the *Code of Virginia*. The provisions of this section address what has become the VPI program, although VPI is not stated by name. Provisions pertaining to the program appear under subsection C of a section entitled "Programs designed to promote education opportunities." The section begins with the following language:

> The General Assembly finds that effective prevention programs designed to assist children at risk of school failure and dropout are practical mechanisms for reducing violent and criminal activity and for ensuring that Virginia's children will reach adulthood with the skills necessary to succeed in the twenty-first century; to this end, the following program is hereby established. With such funds as are appropriated for this purpose, the General Assembly hereby establishes a grant program to be disbursed by the Department of Education to schools and community-based organizations to provide quality preschool programs for at-risk four-year-olds who are unserved by Head Start programs and for at-risk five-year-olds who are not eligible to attend kindergarten.

The VPI program meets the conditions of the above language, and State Appropriation Acts have provided funds for the initiative since FY 1996. Funding for the program has been designated in Appropriation Acts as "At-Risk Four-Year-Olds Preschool Payments." The Appropriation Act contains a broad statement of the General Assembly's intent for the payment, and also specifies some particulars of the program. With regard to legislative intent, the current Appropriation Act states:

> It is the intent of the General Assembly that an additional state payment shall be disbursed by the Department of Education to schools and community-based organizations to provide quality preschool programs for at-risk four-year-olds unserved by Head Start program funding.

Language specifying this legislative intent has been contained in Appropriation Acts since 1994. The only change in this language since the program's inception is that originally it said that preschool payments were for at-risk four-year-olds "unserved by another program." This language meant that the program was not for at-risk four-year-olds who were already served by Head Start, but it was also interpreted to mean that the program could not be used to fund preschool in school divisions which were already providing preschool services through other federal funds such as Title I.

Now, funding from the program is potentially available to all at-risk four-year-olds who are not served by Head Start.

For most of VPI's history, program enrollment was relatively small compared to Head Start. For several years prior to FY 2005, the VPI program served about two-thirds the number of children as Head Start. However, with a major expansion in State funding and children served in FY 2005, VPI began to serve more children than Head Start (Table 1). With the number of four-year-old Virginians estimated at around 100,000 over the last several years, VPI and Head Start together are serving about 20 percent of four-year olds. With Title I and special education preschool taken into account, about 30 percent of four-year-olds are served by government-sponsored pre-K.

Table 1: Four-Year-Old Enrollments in Public Pre-K Programs in Virginia

VPI and Head Start, Enrollment from FY 2002 to FY 2007

Fiscal Year	VPI	Head Start	Ratio, VPI to Head Start
2002	5,966	8,588	0.69
2003	5,823	9,119	0.64
2004	5,858	9,121	0.64
2005	10,318	8,549	1.21
2006	11,237	8,502	1.32
2007	12,363	about 8,500	1.45

FY 2007 Enrollment With Title I and Special Education Included

Program	Number Enrolled
VPI	12,363
Head Start	8,500
Title I	4,548
Special Education	6,025
Total[a]	**31,436**

[a]The total may overstate the number of children served (to the extent that some children are served by more than one program).

Source: "Virginia's Preschool Programs," an April 2006 presentation to the Virginia Board of Education and "Delivery of Preschool Services and Programs in Virginia's Public Education System," a Nov. 2006 presentation by House Appropriations Committee staff.

STATE FUNDING AND STATE AND LOCAL COSTS FOR VPI

VPI provides preschool for at-risk four-year-olds at no cost to the parent(s) or guardian(s) of the child. The costs for the program are paid with State and local funds.

State Funding for VPI

State funding for the program is in the form of per-pupil grants. The magnitude of State funding is based on the State share of a fixed amount per pupil. From FY 1996 to FY 2006, the State paid its share of a total cost of $5,400 per child in the program. The ba-

sis for the $5,400 per-pupil amount was explained in a 1993 report *A Study of Programs Serving At-Risk Four-Year-Old Children* by the Virginia Board of Education, the Department of Education, and the Virginia Council on Child Day Care and Early Childhood Programs. This report provided a total cost estimate for providing an "optimal model" preschool program that equated to about $7,627 per child, but also noted an estimated per-pupil cost of $5,400 for an "acceptable quality" preschool program. The report stated that the $5,400 per child cost "is based on the findings of the 1990 General Accounting Office report *Early Childhood Education: What Are the Costs of High-Quality Programs?* and is also the statewide average cost of serving a four-year-old in the model early childhood programs currently provided through the Child Care and Development Block Grant" which Virginia received from the federal government. Given the continued use of $5,400 as the State-acknowledged per-pupil amount from FY 1996 to FY 2006, variations in the State funding during those years was due to increases in the number of pupils to be served in the program.

The State's share has paid the proportion of the grant amount which is not borne by the locality through a local match. The local match proportion is determined based on the composite index measure of local ability to pay. (The composite index is a measure used by the State to distribute most education funding for kindergarten through grade 12; the index measures locality real property values, income, and taxable sales relative to locality student membership and population.) At the 2006 General Assembly session, the total per-pupil cost to be paid by the State and the local match in FY 2007 and FY 2008 was increased to $5,700.

The State's per pupil cost contribution toward the $5,700 amount varies inversely with local ability to pay, ranging from about 80 percent of $5,700, or $4,539, to 20 percent of $5,700, or $1,140 (Table 2). In localities which spend more than the local match required of them to meet the $5,700 per-pupil cost, the State's contribution on a percentage basis is less, because the State does not acknowledge costs above $5,700 per pupil. A locality with a high composite index (high ability to pay) and high program costs may pay about 88 percent of their program cost.

In the early years of VPI, the total per-pupil amount used by the State to determine State and local cost shares exceeded the per-pupil allocation amounts from the federal government for Head Start programs in Virginia. For example, in FY 1996, the VPI total per-pupil amount was 120 percent of the per-pupil allocation for Head Start pupils. However, by FY 2005, the VPI total per-pupil amount used by the State in determining cost shares was about three-quarters of the per-pupil amount allocated for Virginia's Head Start preschool students (Table 3).

VPI funds are not just for the purpose of meeting classroom costs. The Appropriation Act indicates that the grants "shall be used to provide programs for at-risk four-year-old children which include quality preschool education, health services, social services, parental involvement and transportation." Programs are to at least provide school-year services.

Table 2: Per-Pupil VPI Costs Borne by State and Localities Vary Based on Local Ability to Pay (Wealth) and Local Costs Above Minimum

	Low Local Wealth, Minimum Per-Pupil Cost[a]		Average Local Wealth, "Prevailing" (Typical) Per-Pupil Cost[b]		High Local Wealth, High Per-Pupil Cost[c]	
	Per-Pupil	Percent	Per-Pupil	Percent	Per-Pupil	Percent
State	$4,539	80%	$3,135	47%	$1,140	12%
Local	$1,161	20%	$3,556	53%	$8,660	88%
Total	$5,700	100%	$6,691	100%	$9,800	100%

[a] Based on Wise County's composite index of 0.2036.
[b] Assumes a composite index of 0.4500.
[c] Based on Alexandria City's composite index of 0.8000 and its reported per-pupil cost

Note: The composite index is the State's measure of local ability to pay, used in education funding formulas.

Source: JLARC staff analysis.

Table 3: Per-Pupil Amounts for VPI and Head Start in Virginia

Fiscal Year	VPI Per-Pupil Cost For Setting State and Local Shares	Head Start Allocations Per Pupil for Virginia Children Served	Ratio, VPI to Head Start
1996	$5,400	$4,507	1.20
1997	$5,400	$4,754	1.14
1998	$5,400	$5,141	1.05
1999	$5,400	$5,411	1.00
2000	$5,400	$5,887	0.92
2001	$5,400	$6,604	0.82
2002	$5,400	$6,925	0.78
2003	$5,400	$6,988	0.77
2004	$5,400	$7,128	0.76
2005	$5,400	$7,216	0.75
2006	$5,400	$7,169	0.75
2007	$5,700	--	--

Source: State Appropriation Acts; The National Center for Education Statistics' Digest of Education Statistics; and Head Start program fact sheets.

State and Local Costs for VPI Since FY 1996

The mandate for the JLARC review required that staff assess the costs of VPI to the State and localities "since its inception." State costs for the program are estimated based on actual enrollment levels and the State share of the VPI per-pupil cost. Local match amounts are based on the local shares of the VPI per-pupil cost. The local share of the VPI cost varies based on each locality's measured ability to pay (the State's "composite index)." Localities can choose to spend more than the required local match. JLARC staff obtained information on local costs spending by surveying school divisions and by contacting other VPI lead agencies.

From FY 1996 to FY 2007, State expenditures plus the estimated local match have totaled about $447.1 million. It is not feasible to estimate the local costs above the local match with as much accuracy as the estimates for State expenditures and local match amounts. Based on the JLARC survey, most localities have difficulty retrospectively determining their expenditure totals for VPI. As a rough estimate of the range in these costs, JLARC staff first used locality-reported total per-pupil amounts for FY 2007, subtracted $5,700 from those amounts, and multiplied the difference times the number of VPI pupils served. For localities unable to provide a per-pupil cost, a range in cost was estimated by assuming no local expenditures above the match for the low end of the range, and by assuming a high per-pupil amount (based on urban, suburban, and rural locality spending patterns) for the high end of the range. Using the data from the limited number of localities which did report expenditures over the years, prior-year estimates were developed based on the proportion of total FY 2007 costs that these localities reported as costs in each of the prior years.

Table 4 shows the results of this analysis by fiscal year. With estimated local costs above the match included, total expenditures over the time period are estimated to be about $589 million (the midpoint of the range), or an average annual State plus local expenditure of $49 million.

EXTENT OF LOCALITY PARTICIPATION IN VPI

In 2006-07, 100 localities participated in VPI, while 36 did not. Some localities did not participate because they were not eligible to participate. Other localities were eligible but chose not to participate.

Table 4: Estimated Costs of VPI, FY 1996 to FY 2007 ($ in Millions)

Fiscal Year	State Expenditures	Estimated Local Match Expenditures	Estimated Local Costs Above Match (Rough Estimates)	Total
1996	$8.0	$5.8	$1.0 to $1.4	$14.8 to $15.2
1997	$14.8	$10.7	$2.8 to $3.7	$28.3 to $29.2
1998	$16.9	$12.2	$3.3 to $4.4	$32.4 to $33.5
1999	$18.9	$13.7	$3.3 to $4.4	$35.9 to $37.0
2000	$19.1	$13.8	$3.5 to $4.7	$36.4 to $37.6
2001	$18.4	$12.9	$9.3 to $12.0	$40.6 to $43.3
2002	$18.8	$13.4	$9.2 to $11.9	$41.4 to $44.1
2003	$18.2	$13.3	$12.9 to $16.7	$44.4 to $48.2
2004	$18.2	$13.4	$16.6 to $21.4	$48.2 to $53.0
2005	$34.9	$20.8	$21.2 to $27.3	$76.9 to $83.0
2006	$38.5	$22.4	$21.1 to $27.2	$82.0 to $88.1
2007	$44.7	$25.7	$19.4 to $24.9	$89.8 to $95.3
Total	**$269.4**	**$178.1**	**$123.6 to $160.0**	**$571.1 to $607.5 (midpoint = $589)**

Source: State expenditures (based on VPI enrollment) for FY 1996 to FY 2000 are from "Delivery of Preschool Services and Programs in Virginia's Public Education System," a November 2006 presentation by Virginia House Appropriation Committee staff. State expenditures for FY 2001 to FY 2006 are based on DOE spreadsheets. Local match expenditures for FY 2001 to FY 2006 were calculated using composite index values of participating school divisions. For earlier years (FY 1996 to FY 2000), a 42 percent local share was used, or the average aggregate local share percentage of participating localities in years before the program substantially expanded. Method to estimate local expenditures beyond the match is described in the report text above.

Among Participating Localities in 2006-07, Seven Accounted for Almost Half of VPI Slots

Among the 100 localities participating in VPI in 2006-07, seven localities with large programs accounted for about 47 percent of VPI slots. These localities were

- Norfolk (1,487 FTE slots, or about 12 percent),
- Newport News (1,031 FTE slots, or about 8 percent),
- Richmond City (845 FTE slots, or about 7 percent),
- Fairfax County (711 FTE slots, or about 6 percent),
- Virginia Beach (704 FTE slots, or about 6 percent),
- Portsmouth (563 FTE slots, or about 5 percent), and
- Hampton (490 FTE slots, or about 4 percent).

Fourteen Localities Were Not Eligible to Participate

The number of VPI student slots in each locality that the State will help fund is determined through a calculation made by DOE staff. DOE multiplies each locality's free lunch participation percentage times the estimated number of four-year-olds in the locality, and then subtracts the number of children that are being served by Head Start.

In some localities, the number of Head Start program slots equals or exceeds the DOE projected number of at-risk four-year-olds. These localities therefore are not eligible to participate in VPI. In 2006-07, 14 localities were not part of VPI because they were not eligible: the counties of Craig, Giles, Lee, Mathews, Orange, Rappahannock, Scott, Stafford, and York, and the cities of Buena Vista, Norton, Radford, Lexington, and Emporia. Of these localities, in 2007-08, Scott and York County are eligible for VPI funding for one student slot each, due to an increase in their projected number of four-year-olds.

Eighteen Localities Choose Not to Participate in VPI, Primarily Because of Cost and Space Considerations

Eligible localities have the option to participate or not participate in VPI, and there have always been localities which have opted not to participate. The number of localities participating increased from FY 2004 to FY 2007. In FY 2004, 75 localities participated in the program, but by FY 2007, there were 100 localities participating (and DOE indicates that 106 localities may be participating in 2007-08). Factors in the increased participation include

- elimination of a Title I preschool deduct from the allowed number of VPI slots, beginning in FY 2005,
- updating the projected number of four-year-olds,
- updating division free lunch percentages, and
- updating each division's Head Start child count.

There were 22 localities which were eligible but did not participate in VPI in 2006-07. According to DOE, this number is declining to 18 localities in 2007-08. These localities, and the reason they have given to DOE for non-participation, are shown in Table 5.

The reasons for non-participation in five localities (Colonial Beach, Fairfax City, Madison, Manassas City, and Scott) seemed sufficiently clear from the information provided to DOE, while Loudoun and York indicated to DOE that they think they are meeting their needs in other ways besides the use of VPI, and Bland indicated that it is working on a program redesign. JLARC staff surveyed the other superintendents in the other ten school divisions, then, in order to gain further insight into the factors impacting the non-participation of their localities. Eight of the ten superintendents responded to the survey.

The respondents overwhelmingly indicated that in their localities, the lack of participation is not due to citizen, school board, or local governing body opposition in principle to four-year-old pre-K for at-

risk students. Lack of participation also does not appear to stem from a perception that there is a lack of need or a division's belief that costs would exceed benefits. Further, respondents indicated that as educators, they think that programs such as VPI are helpful to the academic and social preparation of students for kindergarten, and that the programs can have positive longer-term impacts. The major factors causing non-participation, as viewed by these respondents, were space (cited by four of eight as a major factor in non-participation), start-up costs for the program (cited by five of eight as a major factor), and the recurring local share costs (cited by six of eight as a major factor, and cited as a moderate factor and a minor factor by the other two).

All eight of these respondents indicated that they could see "conditions or circumstances under which their locality would likely decide to participate in VPI." Five of eight cited increased funding as

Table 5: Localities Eligible for but Not Participating in VPI in 2007-08

Locality	Reason Given for Not Participating
Bland	"We are looking to redesign our program."
Colonial Beach	Interested – funding not enough. Need approximately $150,000 for salary plus benefits plus program development & implementation."
Colonial Heights	"Lack of space."
Fairfax City	"Fairfax County Office for Children covers all school districts within Fairfax County."
Frederick	"Local funding and space issues."
Galax	"No space is available for an additional preschool classroom within our school buildings. Funds are not sufficient to lease / purchase space off of school grounds."
Gloucester	"The only classroom that is available in the division at this time is needed to house an existing Headstart program."
King George	"Funds."
Loudoun	"Loudoun serves students eligible for VPI through other programs through local funds."
Madison	"Due to the required time for a half-day program (3 ½ hours), we would not be able to offer two half-day sessions as we are currently offering."
Manassas City	"Our School Board voted not to participate in preschool until it is fully funded."
Middlesex	"The Middlesex County Public Schools budget does not contain funds that would allow for full funding of the preschool initiative."
New Kent	"Lack of space, local funding component, sustainability."
Poquoson	"At this time PCPS does not have available space nor matching funds to support this initiative."
Salem	"Insufficient local funds to fully fund the program."
Scott	"Lack of classroom space and we presently have a 4-year-old Head Start Program that the school system is the grantee agent."
Sussex	"We do not have the space."
York	"York County has identified and provided sufficient programming options to meet the needs of our population without accessing VPI."

Source: Virginia Department of Education, Spring State Report (Projected School Year 2007-08).

a key condition or circumstance, with two particularly citing the availability of State start-up grants as a factor. Two superintendents indicated that plans for a new elementary school in the localities could address space issues sufficiently to enable participation. Another superintendent indicated that the locality's priority is currently on the establishment of full-day kindergarten. With that established, a pre-K program would be more likely to receive consideration.

PARTICIPATING LOCALITIES HAVE SUBSTANTIAL LATITUDE IN IMPLEMENTING VPI

Participating localities and educators in those localities have substantial latitude in implementing VPI. Examples of areas in which participating localities have latitude include

- setting eligibility criteria,
- the extent to which VPI slots are filled,
- determining the lead agency for the program and the service provider,
- the classroom setting,
- the extent to which various instructional settings or formats are utilized,
- daily schedules,
- curriculum content aligned with "the Foundation Blocks" and assessments other than PALS pre-K,
- class sizes and pupil-teacher ratios to be at or below maximum permissible levels, and
- teacher compensation levels.

Criteria for Determining Children That Have Priority to Be in VPI

DOE determines the number of VPI slots that the State will help fund by looking at an income/poverty-related factor—the proportion of children in the locality who are eligible for free lunch. However, each locality can determine the methodology that it will use to prioritize children to fill the available slots.

A content analysis of method explanation sheets submitted by 46 school divisions shows some substantial differences as well as some similarities in how this responsibility is handled. Income is consistently included as part of the determination methods. However, in those method explanation sheets with clearly delineated point scoring, income per se is not as high a proportion of the scoring system as might be expected. In the sheets analyzed, income

accounts for a range of from 6 to 39 percent of the rating, with an overall average of 16 percent.

Among the 46 divisions providing method explanation sheets identifying the factors used in scoring, 20 use a student assessment instrument or educational screening as a factor in their priority scoring, while 26 do not. Among the divisions using such an instrument, the instrument typically receives more weight in the evaluation than the income factor. Among divisions using the instruments and reporting factor weights for their criteria, the instruments accounted for 17 to 44 percent of the priority score, with an average weight of 30 percent.

Other frequently-used risk factors in locality assessments include the number and nature of the child's caretakers, the education level of the caretakers, limited English proficiency on the part of the child or the adults, family member incarceration, and family history of substance abuse or violence.

While most risk assessment sheets reviewed appear appropriate for the task, some assessments could be improved. For example, in one locality, the higher the score on the sheet, the more advantaged the child is presumed to be and the less in need of VPI services. However, there are items on the form in which points are awarded for actually displaying a risk factor, running counter to the general scheme.

Filled and Unfilled Slots for VPI

In 2006-07, DOE projected that 17,628 children could be placed in slots for VPI in participating localities. However, approximately 12,363 slots were filled, or only 70 percent of the DOE projection.

Table 6 shows localities participating in VPI that used less than half their VPI slots in 2006-07 and are slated to use less than half their slots in 2007-08. One of the localities indicates that the DOE projection of slots may overestimate their need. However, five of the localities indicate that a lack of space or local funds is the cause for not filling more slots. Among these divisions is Henrico County, a division that has a substantial waiting list for VPI at some of its schools which offer the program.

Lead Agency for VPI and Service Provider

In all but six localities, the school division has been designated as the lead agency for VPI. However, one of the six localities in which the lead agency is another entity is the largest locality in the State, Fairfax County. Other localities that do not use the school

Table 6: Localities Filling Less Than Half Their Available VPI Slots in 2006-07 *and* 2007-08

Locality	Percent of Slots Utilized in 2006-07	Reason Given to DOE for Not Filling Available Slots in 2007-08
Botetourt	43%	"Currently the local share of funding does not allow us to add a second site. Projected second site for 2008-09."
Fairfax	40%	"Lack of space and unavailable matching funds."
Alexandria	24%	Locality bears 80 percent of the cost, and has a cost of care of $9,800 "that far exceeds the $5,700 allotted."
Westmoreland	19%	"There is a very limited number of students on the wait list and those that are do not meet the criteria."
Henrico	11%	"Lack of building space. Local match."
Prince William	2%	"Lack of funds for local match. State requires $1,221 per child in local funding. To provide high quality [early child-hood education] program with certified teachers, the local cost is $4,111 per child."

Source: DOE Spring State Report (Projected School Year 2007-08) and DOE VPI data for 2006-07.

division as the lead agency include Albemarle, Amelia, Fauquier, and Richmond County, and also the City of Alexandria.

Localities also may choose to have the school division provide the VPI program, or opt to contract with another entity to provide the service, or do some of both. In the great majority of cases, school divisions provide the services. However, Alleghany, Fairfax, Fauquier, Richmond County, Shenandoah, Alexandria, Chesapeake, and Virginia Beach all have other entities as service providers for at least some of their VPI students. The YMCA of South Hampton Roads renders the preschool services for Chesapeake and Virginia Beach, but classrooms for both programs are located on the grounds of the public schools.

Classroom Settings: School Buildings, Pre-K Centers, Trailers, and Partner Facilities

VPI classrooms can be found in school buildings, pre-K centers, mobile units (trailers), and in the facilities of contracted entities. Most VPI classrooms, however, are housed in elementary school buildings with classes from other grades.

School Buildings. The location of VPI classrooms in school buildings has some benefits. A major objective of at-risk preschool is to prepare the children for kindergarten and for success in school. By being in a regular school building setting, the students become used to walking in school hallways, seeing older students, seeing teachers who they may have in the future, and eating in the school cafeteria.

Pre-K Centers. Other divisions have opted to have one or more pre-K centers or buildings exclusively serving pre-K students. Portsmouth, for example, has had a diminishing K-12 enrollment, meaning that some schools have become underutilized. The division has converted two of the underutilized schools into preschool centers which serve VPI students and others.

Mobile Units. Some divisions that face classroom space limitations have VPI classes in mobile units (trailers). In response to a JLARC staff survey question, 55 of 82 school divisions responding (67 percent) indicated that a lack of classroom space limits their ability to provide preschool classes for at-risk children in one or more of their schools. Of these 55 divisions, 16 report having one or more trailers in use: Bedford County (2 VPI classrooms), Brunswick (2), Buckingham (4), Caroline (2), Culpepper (2), Cumberland (2), Franklin County (5), Henrico (2), Mecklenburg (1), Montgomery (4), Pittsylvania (2), (Chesapeake (19), Covington (1), Harrisonburg (4), Manassas Park City (2), Suffolk (6), and Williamsburg-James City (8).

Some divisions that do not view space as a limiting factor may also use trailers. The Virginia Beach division falls in this category.

JLARC staff observations of pre-K classrooms in mobile units revealed that the classrooms could be spacious and offer a more inviting atmosphere than classrooms not designed for pre-K purposes (Figure 1). However, views among the school divisions about

Figure 1: Interior of a VPI Classroom Held in a Trailer

Source: JLARC staff photograph, September 2007.

the use of trailers for at-risk pre-K are mixed (Table 7). Not surprisingly, divisions that use trailers tend to view them more favorably than divisions that do not; but 49 of 50 division respondents in the three categories agreed with the statement that "providing pre-K to children in trailers is better than not serving them at all."

One division extensively using trailers has stated that "as long as the trailers are appropriately equipped to serve preschool children, they provide an acceptable instructional space," but also notes that the trailers "do require a bathroom and a separate utility sink (located in the classroom)." The pre-K need for ready access to bathroom facilities and sinks may impact the extent of trailer usage for pre-K. Prince George County notes:

> Trailers for PK students must have a bathroom. This impacts usage of trailers because water lines must be run to the trailers. These lines must be buried underground to prevent freezing in the winter.

The Dinwiddie County school division has expressed "worries about moving pre-K students from trailers to school buildings" at times when there is a threat of "tornadoes, hurricanes or other emergency or inclement weather."

Some school divisions indicate that to the extent that they are or would use trailers for instruction, they are more inclined to put

Table 7: School Division Responses to Questions About the Use of Trailers for Pre-K

	Divisions Using Trailers (% Yes)[a]	Divisions Which Have Not Considered Trailer Use (% Yes)[b]	Divisions Considered but Rejected Trailer Use (% Yes)[c]
Statements Favorable to the Use of Trailers			
Trailers can be a good solution to space limitations.	81%	53%	43%
Parents are comfortable with the idea of pre-K being housed in trailers.	80	42	29
Some trailers offer better classroom space than our regular classrooms.	56	50	33
Providing pre-K to children in trailers is better than not serving them.	100	100	95
Statements Unfavorable to the Use of Trailers			
It is difficult to consistently heat and / or cool trailers.	31	33	52
Pre-K students in trailers are too separated from the school.	44	69	90
Pre-K teachers in our division object to teaching in trailers.	13	31	19
We do not have the space on school grounds to place trailers.	20	46	38

[a] n = 15 to 17
[b] n = 12 to 17
[c] n = 17 to 21

Source: JLARC staff survey of school divisions with VPI programs, August-September 2007.

higher elementary grade classes or special classes in the trailers rather than pre-K. The Louisa school division, for example, states that "trailers are currently being used at all schools for upper elementary grades, and preschool (as well as kindergarten and first grade) are housed in the main building for safety and facilities." The Augusta school division states that some classes other than pre-K are in trailers at some schools "so pre-K can remain in the building." The Roanoke County school division reports that it "has added trailers in the past and moved school-age children out and kept PK children in house," causing "animosity among staff and parents." The Lynchburg school division concludes that "if trailers are used, any grade should be subject to being housed there based upon total school needs."

Facilities of Contracted Entities. VPI programs may be provided on the grounds and in facilities of entities with which the locality has a contract for the provision of the program. In Alleghany County, for example, preschool services are provided by the YMCA using their facilities at two separate locations.

Instructional Settings in the Regular Classroom

The National Association of State Boards of Education (NASBE) has stated that preschool curricula "should expose children to a variety of classroom structures (whole class, small group, individual), thought processes, and discourse patterns in ways that accommodate their individual needs and abilities." NASBE further recommends that preschool programs incorporate a range of structured and unstructured activities that promote childrens' skills in problem-solving, self-control, sustaining attention, and the ability to work with adults and other children. The National Institute of Early Education Research (NIEER) suggests that preschool classrooms should be busy with conversations, projects, experiments, reading, and building activities. In sum, it appears that quality classrooms engage children through diverse and purposefully designed instructional approaches that optimize the learning opportunities of children. Teachers should provide group instruction consistent with learning goals, and should also provide semi-structured learning environments that are consistent with curricular objectives.

The four instructional settings or formats used in VPI classrooms that provide some diversity in the daily experiences of the children are whole group, small group, individual work time, and centers/free play. While these formats are held in common, there are differences in how much time different VPI classrooms allocate to these activities.

"Whole Group" Instruction. Whole group instruction is the way in which most VPI classrooms begin the day (Figure 2). In this instruction, the teacher (or in some cases, the instructional aide) leads the entire class through one or several activities. Frequently, the first whole group in the morning will address what day of the week it is, recite the days of the week, talk about the month or the season of the year, discuss the weather, and go over letters of the alphabet or letter sounds or counting numbers. High student energy levels in the whole group setting are often achieved through the use of songs that reinforce the letters and letter sounds or counting. Other fun songs may be played which encourage the children to clap or address restlessness in the students by motivating them to stand up and move about to "get the wiggles out." As the day progresses, whole groups may be used a few more times, for activities such as reading stories. During whole group activities led by the teacher, the instructional assistant may spend the time in a variety of ways, including working quietly to engage distracted students, participating with the group, or setting up the classroom for the next planned activity.

Figure 2: Whole Group Time for Some VPI Students

Source: JLARC staff photograph, September 2007.

"Small Group" Time. With two adult instructors in classrooms with more than eight students, there also is an opportunity to divide the classroom into "small group" instruction. In a classroom of 18 students, for example, the lead teacher may take nine of the students and lead an activity with them, while the instructional assistant leads an activity for the other nine. This format is useful for activities in which there is a desire for individual student participation

in front of the group. For example, students may be given a different number of objects, such as plastic animals. Each student may have a turn to identify the number of animals which he or she has, and indicate whether that number is more, less, or the same compared to the number of animals which another student has. A group of 18 students can be unwieldy for this exercise. It is possible to get around the group more quickly and have each student wait for a shorter period of time between turns in a smaller group.

"Individual Work" Time. In the "individual work" format, students sit in chairs at tables and perform individual work (Figure 3). In this setting, students can work on fine motor skills, such as holding pencils, crayons, or markers, or using scissors. Students may be asked to draw a picture, color in a picture, cut out and paste shapes, write letters or numbers, or do some work in a workbook.

Figure 3: Individual Work Time

Source: JLARC staff photograph, October 2007.

Center Time. In "center time," students have the option to spend time in one or more of several activity centers in the class (Figure 4). This is semi-structured learning time. The format gives the students the most choice and freedom in what they do and how they do it. Typically, there are one to four students at any given center. Across classrooms, teachers and instructional assistants are engaged to varying degrees during this time in moving about the classroom and fostering learning during the center experience.

Figure 4: Center Time

Source: JLARC staff photograph, September 2007.

In the VPI classrooms which JLARC staff visited, almost all had the following centers: kitchen or housekeeping or home living center, blocks or Legos, and computer center. Other frequently-offered centers included reading or book center, sand and/or water discovery table, dramatic play or dressup, listening (listening to stories on a cassette tape or CD), and art (drawing or painting). Less frequent offerings included a writing center, puzzles, sit and play dominoes, bean bag toss, playdough, and bowling.

School Day of VPI Students

In addition to the instructional formats which are utilized, the preschool day also consists of other elements, such as breakfast, transitions between activities, lunch, recess, and naps. The activities which are designated, the sequence of these activities, and the length of time for the activities can vary from day to day, across classrooms in a school, across schools, or across divisions. Exhibit 2 describes a typical day for VPI students in one Virginia classroom. Table 8 summarizes results from an analysis of sample classroom schedules submitted by school divisions in response to a JLARC staff survey. As indicated, there is variability in areas such as the length of the school day, of center time, of naptime, and of gross motor (recess or outdoor play) time.

Exhibit 2: Illustrative Example of the School Day of a VPI Student

7:20 to 8:15	**Arrival and Breakfast.** Children arrive, mostly off school buses, at various times, and go to the school cafeteria for breakfast.
8:15 to 8:25	**"Greeting Time."** During this time, students "sit down on the shape carpet to review the daily schedule and figure out who is absent." Based on pictures on the bulletin board, the students try to figure out the day of the week, and the teacher writes the words, "Today is _____" so the class can see it. A student designated that day as "the weather checker" looks out the window to see if the class can go outside that day, and the class works on describing the day's weather. A student "calendar helper" puts up the day's number (date) on the class calendar board.
8:25 to 8:40	**Small Group Time.** This day, the students play a game of Bingo with Bingo cards and chips. The students are in assigned seats at tables. *[Note: This game is played because it reinforces number and letter skills.]*
8:40 to 9:00	**Large Group Time.** This day, the students sing songs in a large group to accompany music played on a compact disc player.
9:00 to 9:10	**Story Time.** The teacher or instructional assistant reads a storybook with the children.
9:10 to 9:15	**Planning.** The students sit down at the tables, and the teacher asks them about their plan for the upcoming "center time." Students are encouraged to use a complete sentence to say what they plan to do in the centers.
9:15 to 10:15	**Center Time.** Teachers are expected to interact with students during center time. Students may leave a center, but only after cleaning up.
10:15 to 10:25	**Clean Up Time and "Recall."** Students are responsible for cleaning up their center. Once students are finished, the teacher asks them to tell the class what they did during center time.
10:25 to 10:50	**Gross Motor Time** (recess or indoor exercise).
10:50 to 11:15	**Transition Time.** Getting ready for lunch includes students lining up to take turns washing their hands.
11:15 to 11:40	**Lunch in the cafeteria.**
11:40 to 11:45	**Clean Up, Return Trays, and Return to Classroom.**
11:45 to 11:55	**Story Time.** After story is completed, students are encouraged to tell the teacher about the book just read.
11:55 to 12:40	**Center Time.** *(See above for description).*
12:40 to 12:45	**Clean Up.**
12:45 to 1:35	**Rest Time.** Students nap on mats, or, if not sleepy, may quietly look at books.
1:35 to 2:00	**Wake Up, Get Ready for Dismissal, and Dismissal.** Students wake up, mats are folded up, afternoon school announcements are made, and students get their backpacks and jackets. Students are escorted to the buses, and teachers wait until all buses are called.

Source: Summary of a schedule / emergency plan of a classroom visited by JLARC staff in May 2007.

Table 8: VPI Classroom Schedules, Minutes of Time Spent in Different Activities

	Morning Arrival	Transitions, Meals, and Snacks	Quiet/ Nap	Center Activity	Gross Motor Activity	Other Instruction	Total Time
Mean	15	102	59	55	40	137	409
Minimum	0	60	30	0	20	30	360
Maximum	45	145	110	190	65	230	540

Source: Analysis of 32 sample VPI classroom schedules submitted by school divisions.

Curriculum Content Aligned With the Foundation Blocks

The State provides a foundation for what is to take place in VPI classrooms through a set of minimum standards known as the Virginia Foundation Blocks for Learning. DOE staff in the Office of Elementary Instructional Services have prepared a 2007 document entitled *Virginia's Foundation Blocks for Early Learning: Comprehensive Standards for Four-Year-Olds* which seeks to establish a measurable range of skills and knowledge essential for four-year-olds to be successful in kindergarten.

The *Foundation Blocks* provide early childhood educators a set of minimum standards in literacy, mathematics, science, and history and social science that are derived from scientifically-based research on indicators of success for entering kindergarten. In 2007, the *Foundation Blocks* became more comprehensive with the addition of standards in physical and motor skill development, and personal and social development.

The *Foundation Blocks* are designed to be a tool for early childhood educators in the development of curriculum and meaningful classroom activities. Each Foundation Block is organized to build towards the Virginia Kindergarten Standards of Learning, and sample teaching activities are included to assist teachers in the planning of meaningful classroom activities. DOE requires that VPI programs align their curriculum with the *Foundation Blocks,* which helps to ensure that all areas within the *Foundation Blocks* are covered by local curricula and that local curricula are geared towards ensuring the best chance of success for VPI students when they enter kindergarten.

VPI providers, both school divisions and contracted parties, say that the content taught in the classroom is aligned with the *Foundation Blocks*, which appears to be a useful tool. However, within the range of curriculum that seems aligned with the foundation blocks, each locality can choose the curriculum which it thinks best fits its needs. Some localities purchase commercially available curricula. Other localities, as indicated in the example below, use a curriculum uniquely developed for them.

Case Study

"Discoveries and Adventures" is a preschool curriculum used by the YMCA of South Hampton Roads in Virginia Beach and Chesapeake. A second edition of the curriculum was recently released. Local architects of the curriculum note that two resources were particularly helpful in shaping the curriculum: "The Creative Curriculum" and the "High Scope Curriculum." It is described as a "child-centered curriculum designed to prepare children for kindergarten through enhancing their social-emotional, language, cognitive, and physical development." The architects of the curriculum also state that they have aligned the curriculum with the Virginia Foundation Blocks for Early Learning, describing the foundation blocks as "a set of minimum standards with indicators of success for entering kindergarten based on scientifically-based research." The guide book lists six general categories of goals of the curriculum: (1) intellectual growth and cognitive stimulation, (2) emotional security, (3) social adjustment, (4) physical well-being, (5) creativity, and (6) safety in the world. A curriculum guide spells out planned activities month by month in language, perceptual, problem-solving, memory, fine motor, and large motor skills. The guide also states that "play is viewed as a major contributor to the overall development of the child and, as such, is respected and encouraged."

Class Sizes and Pupil-Teacher Ratios

VPI requires that program classes have no more than 18 pupils in a class, and there must be one adult (teacher or aide) per nine students. (These requirements are discussed in more detail in Chapter 3.) However, there are some differences across the program in how these requirements are interpreted and implemented. Some programs interpret and implement the requirements as meaning that throughout the day, a ratio of no more than nine children per adult must be maintained. Consequently, they may have a floating aide available for instances when a teacher or an aide in a classroom needs to leave the class for some reason. Other schools have staffing assignments for VPI classes that satisfy the required ratio, but do not maintain the required ratio throughout the day.

In addition, programs by necessity or by choice can provide more staff or have smaller classes than the VPI program maximums. The average number of VPI students per class in FY 2007 was about 14.9, and the average ratio of VPI children to assigned classroom staff (teachers and instructional assistants) was about 7.4 to one. However, some school divisions have fewer VPI students per class and lower pupil-teacher ratios.

Teacher Compensation Levels

There is no statewide salary scale for the compensation of VPI teachers and teacher aides. There also is no required minimum or maximum permissible salary level. Teacher compensation levels are within the control of the entities providing the services. Consequently, there can be wide variations in the compensation which is paid to similarly-credentialed and similarly-experienced staff for equivalent work.

It appears that all school divisions choose to compensate pre-K staff based on the same salary scale they use for other teachers in their division. Teacher experience levels are recognized in these local scales. However, in localities that contract VPI out to entities other than the school division, the school division's salary scale does not apply. This is the case in Virginia Beach, where salary levels for staff teaching preschool is lower than would be the case if the school division's salary scale applied.

Table 9 shows the average preschool staff salaries in Arlington and Fairfax County, two localities with high salaries in Northern Virginia, a region of the state in which schools face a high cost of competing for personnel. The table also shows the average preschool staff salary levels in the five localities with the next highest salaries as well as the five localities with the lowest salaries reported on the JLARC staff survey.

Table 9: High and Low Average Salaries for Preschool Lead Teachers and Instructional Assistants in Participating Localities

Survey Respondents	Lead Teachers	Instructional Assistants
Arlington	$81,000	$36,000
Fairfax	$68,905	$30,084
Mean, Next Highest Five Divisions	$55,669	$20,545
Mean, Lowest Five Divisions	$29,545	$9,969

Source: JLARC staff survey of school divisions with VPI programs, and contacts with other lead agencies if not the school division. Fairfax salaries are for school division VPI teachers.

On average, the lead teachers in the five higher-paying divisions shown make about 88 percent more than in the lowest-paying divisions. Instructional assistants in the higher-paying divisions also make about double the salary as those in the lowest. Virginia Beach and Alleghany, which contract out VPI services, did not report the average salary for the pre-K teachers and instructional assistants who are serving VPI children in private arrangements.

Chapter 3

Assessment of VPI Program Requirements

In Summary

The State's program requirements for VPI have been established both in statute and administratively. It appears that school divisions are largely in compliance with these requirements, many of which are to ensure compliance with State law and some of which are to maintain program quality. The types of standards required by the State are typically referred to as "structural standards," and research differs on the extent to which such measures are linked to program quality. Nevertheless, such standards may have a role in helping to establish a framework for a baseline level of program quality. Therefore, while the VPI program already meets many of the structural standards advocated by early childhood organizations and experts, it may be worthwhile to consider how and whether to incorporate additional select measures and whether such standards could be addressed through Virginia's Star Quality Initiative.

The mandate for this study asked that the review "identify and assess the program's accountability measures to promote effective programs and efficient use of public funds." Currently, the State has a set of program standards that are intended to promote effectiveness and the appropriate use of funding. The State does not, however, employ accountability measures in the form of quantified indicators (such as test score results) to assess VPI effectiveness. This latter point is discussed in more detail in Chapter 5 of this report.

PROGRAM REQUIREMENTS FOR VPI

The State's eighteen program standards and expectations for VPI have been established in statute and administratively. In addition to those standards established by the State, in some cases localities have established additional program standards for VPI.

State Program Expectations

Most of the State's standards for VPI have been established through either the Appropriation Act or administratively by DOE. However, several standards are also established in the *Code of Virginia.* The initial statutory language establishing VPI in 1995 (Chapter 852, 1995 Acts of Assembly) did not include many specific program standards and expectations, although it did indicate that funds were to be used to provide at least half-day services for the

length of the school year, and that the services should include "quality preschool education, health services, social services, parental involvement including activities to promote family literacy, and transportation."

The initial authorizing language also directed DOE, in cooperation with other agencies, to "establish guidelines for quality preschool education and criteria for the service components, consistent with the findings of the November 1993 study by the Board of Education, the Department of Education, and the Council on Child Day Care and Early Childhood Programs." In 2000, the General Assembly added a specific program standard to the authorizing language (Section 22.1-199.1 of the *Code of Virginia*) which requires a maximum class size of 18 students for VPI classrooms with a maximum student-teacher ratio of 9:1.

The remaining standards and expectations for VPI can be found in either the Appropriation Act or have been established by DOE. In addition to laying out specific program standards, the Appropriation Act indicates that DOE should establish academic standards for VPI "in cooperation with the Council on Child Day Care and Early Childhood Programs." However, DOE staff indicate that the Council on Child Day Care and Early Childhood Programs is no longer in existence. Thus, it appears that the Appropriation Act is in need of update on this provision, and those VPI program standards that have been established administratively were done so solely by DOE.

A key program standard established by DOE is the requirement that programs align their curriculum with Virginia's *Foundation Blocks for Early Learning* (the State's guidelines for what four-year-old children should know and be able to do when entering kindergarten). DOE also established standards requiring program personnel to have appropriate professional credentials, and teachers and instructional assistants to attend at least 15 clock hours per year of professional development.

The most comprehensive listing of the State's VPI program standards and expectations that have been established through the *Code of Virginia*, the Appropriation Act, and by DOE can be found in the VPI *Certification of Participation* (see Exhibit 3). This document must be signed annually by local program administrators, including the division superintendent, to be in compliance with the Appropriation Act requirement that "superintendents, or their designee, of each participating school division must certify that the At-Risk Four-Year-Old program follows the established standards in order to receive the funding for quality preschool education…"

Exhibit 3: Program Standards and Expectations for the Virginia Preschool Initiative as Listed in the *Certification of Participation*

1. The lead agency/locality will comply with all requirements of the Virginia Preschool Initiative set forth in the state appropriation act.
2. The lead agency/locality will provide preschool programs for at-risk four-year-olds not served by Head Start. Four-year-olds served will reach their fourth birthday on or before September 30th.
3. The program will include high quality preschool education, health and nutrition services, social services, parental involvement, and transportation.
4. The program will comply with the staffing standards required by Section 22.1-199.1C, *Code of Virginia.* The maximum class size will be 18 students. One teacher will be employed for any class of nine students or less. If the average daily membership in any class exceeds nine students but does not exceed 18, a full-time teacher's aide will be assigned to the class.
5. The programs will align curriculum with Virginia's Foundation Blocks for Early Learning.
6. Children will be evaluated annually in literacy and mathematics. All programs will use PALS Pre-K in the fall and spring and report data to the PALS office at the University of Virginia.
7. The programs will be full (6 hours) or half (3 hours) day and at least a school year (180 days). For a new program in the first year of implementation only, a program operating less than a full school year shall receive state funds on a fractional basis determined by the pro-rata portion of a school year program provided.
8. Program personnel will have the appropriate professional credentials for the program site.
9. The lead agency/locality will ensure that teachers and instructional assistants attend at least 15 hours per year of professional development.
10. The chief administrator (city manager or county administrator) in conjunction with the school superintendent will identify a lead agency.
11. The lead agency will develop a written local plan for the delivery of quality preschool services. The local plan will include budget, preschool education, staff development, health and social services, parental involvement and transportation. The local plan will demonstrate coordination of resources.
12. The lead agency/locality will develop and use criteria for student eligibility for services.
13. The lead agency/locality will maintain a steering committee to coordinate with schools, child care providers, local social services agency, Head Start, local health department and other groups as needed.
14. The lead agency/locality will submit all reports as required by the Department of Education.
15. No participation fees will be charged to families.
16. The lead agency/locality will participate in site visits conducted by the Department of Education.
17. The required local match based on the composite index of local ability-to-pay will be met. At least seventy-five percent of the local match will be cash, and no more than twenty-five percent will be in-kind.
18. State funds will be used exclusively for educational personnel and program requirements.

Source: *Certification of Participation* for 2007-08 school year, Department of Education.

Local Program Expectations

In addition to the standards established by the State for the VPI program, many localities have also established standards for their local programs. For example, most local programs, particularly those administered by public schools, require lead VPI teachers to have a bachelor's degree, annual evaluations of teachers, developmental screenings of all VPI students, comparable salaries to kin-

dergarten teachers for VPI teachers with comparable credentials, and benefit packages for full-time VPI teaching staff. Some localities also require assistant teachers to have a Child Development Associate (CDA) degree and annual individualized professional development plans for teachers.

LOCAL PROGRAM COMPLIANCE WITH STATE REQUIREMENTS APPEARS TO BE HIGH

It appears that local VPI programs are largely in compliance with the State's program requirements. VPI-participating school divisions must certify each year by signature of local VPI administrators, including the division superintendent, that they will meet the program requirements in the *Certification of Participation.* In addition, DOE periodically checks that local programs are complying with the State's standards through site visits to local programs, which include reviews of program documentation and classroom observations. Current State funding allows two part-time DOE consultants to conduct site visits to most local VPI programs once a biennium. The field consultants record the results of their site visits on the *VPI Site Visit Instrument*, which is largely a checklist of the standards in the *VPI Certification for Participation.*

Based on completed *VPI Site Visit Instruments* for the 2006-2007 and 2005-2006 school years, school divisions are largely in compliance with the program standards set forth in the *Certification for Participation.* All divisions reviewed were in compliance with most of the standards. For those few standards where there was not 100 percent compliance, there were typically only one or two divisions out of compliance. One area where two divisions were out of compliance is aligning local curriculum to *Virginia's Foundation Blocks for Early Learning.* However, DOE reports that efforts are underway within divisions to align their curriculum to the *Foundation Blocks*, and DOE has provided technical assistance to help in this effort.

EXISTING STATE REQUIREMENTS ARE LARGELY ADEQUATE AND GENERALLY USEFUL

DOE staff indicate that the purpose of many of the VPI standards listed in the *Certification for Participation* is to ensure that local VPI programs are in compliance with the requirements set forth in the *Code of Virginia* and the Appropriation Act. For purposes of ensuring local program compliance with the law, it appears that the standards are largely adequate.

Another purpose of preschool standards is to ensure preschool quality. The extent to which school divisions report that the existing VPI program requirements are useful for this purpose appears

to vary. Fifty-one percent of all VPI-participating school divisions responding to a JLARC survey indicated that they find all 18 requirements in the *Certification for Participation* useful for purposes of ensuring quality in the VPI program. The remaining school divisions found only a subset of standards useful for this purpose.

Table 10 indicates the percentage of school divisions responding to the survey that found each standard in the *Certification of Participation* useful for ensuring VPI program quality. The standard that the highest percentage of divisions (80 percent) report as being important in ensuring quality is requiring that children be evaluated annually in literacy and mathematics, and that all programs use the PALS Pre-K evaluation instrument and report their data to the PALS office at the University of Virginia.

The next requirements cited most widely as being important are requiring program personnel to have appropriate professional credentials (77 percent of divisions) and programs to align their curriculum with *Virginia's Foundation Blocks for Early Learning* (76 percent of divisions). DOE staff indicate that the requirement for appropriate professional credentials reflects credentials that have been established locally and, therefore, could vary among divisions. For VPI programs located in public schools, all teachers must have a BA according to the State's teacher licensure standards. However, for VPI programs located outside of public schools, localities determine which credentials are needed for program personnel.

The fourth most widely cited standard (69 percent of divisions) is requiring teachers and instructional assistants to attend at least 15 clock hours of professional development.

For the remaining 14 standards, between 51 percent and 65 percent of divisions indicated them as useful in ensuring a quality preschool program. This is not surprising because many of the remaining standards deal more with complying with the budgetary and legal requirements of the program. One exception is requiring a maximum class of 18 students with a student-teacher ratio of nine to one. Early childhood experts cite widespread agreement that limited class sizes and student-teacher ratios are correlated with higher program quality. One reason why more of Virginia's school divisions did not indicate this requirement as important is that prior to 2000, the maximum class size for VPI classrooms was 16 and the student-teacher ratio was eight to one. Some divisions have indicated that the prior standard did more to promote quality.

Table 10: Importance of Existing VPI Requirements in Ensuring Preschool Program Quality

Item	Potential Significance/Purpose	Percent of School Divisions Indicating Item Is Important to Help Ensure Quality
Children are evaluated annually in literacy & mathematics; all programs use PALS Pre-K & report data to University of Virginia. (6)	Ensures that certain short-term program outcome measures are tracked.	80%
Program personnel have appropriate professional credentials. (8)	Ensures teaching staff have credentials stipulated by school division.	77
Programs align curriculum with *Virginia's Foundation Blocks for Early Learning.* (5)	Ensures statewide early learning standards are met.	76
Lead agency ensures teachers & instructional assistants attend at least 15 clock hours of professional development. (9)	Ensures teaching staff receive regular professional development.	69
Program includes high quality preschool education, health & nutrition services, social services, parental involvement, & transportation. (3)	Ensures compliance with the law & children receive comprehensive services.	65
Maximum class size is 18 students with student-teacher ratio of 9 to 1. (4)	Ensures compliance with the law & limits class size and student-teacher ratios.	59
Lead agency provides programs for at-risk 4-year-olds not served by Head Start. Children reach 4th birthday by Sept. 30.(2)	Ensures compliance with the law & children are served in year preceding kindergarten.	57
Program is full (6 hours) or half (3 hours) day at least school year. New programs operating less than a full school year receive pro-rated funds. (7)	Ensures compliance with the law, length of program day, and allocation of funds.	57
Lead agency develops a written local plan for delivery of quality preschool services. (11)	Ensures compliance with the law & plan developed for preschool services.	55
Lead agency develops & uses student eligibility criteria. (12)	Ensures compliance with the law & definition for at-risk children.	55
No participation fees charged to families. (16)	Ensures no financial barriers to children's participation.	55
Required local match based on the composite index. At least 75% of local match will be cash. (17)	Ensures compliance with the law & establishes requirements for local financial support.	53
Lead agency ensures Appropriation Act requirements met. (1)	Ensure compliance with the law.	52
Lead agency maintains a steering committee to coordinate with early childhood agencies. (13)	Ensures compliance with the law & coordination of services among early childhood agencies.	52
Lead agency submits reports required by DOE. (14)	Ensures compliance with the law & cooperation from programs.	52
Lead agency participates in site visits conducted by DOE. (15)	Allows assessments of program quality.	52
State funds used exclusively for VPI program. (18)	Ensures State funds are used for purpose provided.	52
Chief administrator in conjunction with the superintendent identify a lead agency. (10)	Ensures lead agency is identified to coordinate program & liaison with state.	51

Source: Virginia Preschool Initiative *Certification of Participation*, JLARC staff analysis, and school division surveys.

OTHER "STRUCTURAL STANDARDS" COULD BE EMPLOYED BY VPI TO PROMOTE HIGH QUALITY

The types of standards included in the *VPI Certification of Participation* are typically referred to as "structural standards" by early childhood education experts. Structural or "proxy" measures are easily identified and can be objectively measured—for example a maximum class size requirement. Structural standards are in contrast to "process" measures, such as teacher interactions with children, which are largely assessed through classroom observations.

Research findings differ on the extent to which structural standards are linked to program quality, and states vary in their use of these measures. Nevertheless, such standards may have a role in helping to establish a framework for a baseline level of quality. The VPI program already meets many of the structural standards advocated by early childhood organizations. However, it may be worthwhile considering how and whether to incorporate additional select standards into the VPI program and whether such standards could be addressed through Virginia's Star Quality Initiative. In addition, the mandate for this study requires JLARC to "evaluate the additional costs, if any, of aligning components of the Virginia Preschool Initiative with the Quality Standards checklist recommended by the National Institute for Early Education Research."

Usefulness of Structural Standards in Ensuring Preschool Quality Varies

Evidence on the usefulness of structural standards in ensuring preschool program quality varies. While some researchers have demonstrated links between certain standards and preschool quality, others have disputed these results. In other cases, there may be general agreement that certain standards are generally linked to quality, but research has yet to pinpoint what those standards should be. Similarly, states vary in the extent to which they rely on structural standards to maintain program quality. Nonetheless, there may still be a role for structural standards in attempting to establish a minimum threshold of quality for preschool programs.

One of the most widely discussed structural standards is teacher qualifications—in particular, whether to require lead preschool teachers to have a bachelor's degree. While some researchers have reported significant correlations between high program quality and lead teachers holding a bachelor's degree, other researchers have found that no, or only weak, correlations exists. Still others assert that requiring an associate's degree results in improved program quality, but requiring a bachelor's degree does not lead to further increases in quality.

States also vary in the extent to which they require lead teachers to hold bachelor's degrees. Data collected by the National Institute of Early Education Research (NIEER) shows that most states (28 of the 38 providing state-supported preschool) either currently have this requirement or are in the process of phasing it in. Other states may not require a bachelor's degree, but financially reward programs that employ such teachers. Virginia neither requires lead teachers to hold a bachelor's degree nor provides financial incentive to employ teachers with bachelor's degrees, though 98 percent of lead teachers in the VPI program hold this qualification in FY 2008.

Controversy also exists over other structural requirements related to teacher characteristics, such as the impact of teacher salaries on program quality. One of the difficulties in assessing the impact of teacher characteristics is that it is often difficult to disentangle the effects of characteristics like teacher qualification, training in early childhood, and salary levels. For example, more highly educated teachers are more likely to have received training in early childhood and to have higher salaries, though many researchers indicate that training in early childhood education, regardless of whether a degree is held, results in higher quality programs.

With respect to other types of structural standards, there appears to be more of a consensus that some are linked to quality, but thus far research has not been able to identify the specific standard that would be ideal. For example, most early childhood experts agree and research shows that smaller class sizes and lower teacher-student ratios are preferable. Many experts and state programs cite the maximum class size of 20 students and teacher-student ratio of no more than 1 to 10 advocated by the National Association for the Education of Young Children (NAEYC). Virginia school divisions surveyed for this study were divided on the adequacy of the 18 to one maximum class size that is used for VPI, with 41 finding it an appropriate maximum and 40 considering it too high. Among those considering it too high, 25 thought the maximum should be 16 to one, and ten said it should be 15 to one. However, research has yet to reveal the specific threshold level for classroom size or teacher-student ratio that is most desirable. Some experts feel that a class size over 20 yields less desirable outcomes, but the class size that is "ideal" is not clear. The maximum class size that is reasonable or the class size that seems ideal may also vary with the abilities of the teacher and the composition of the class. A classroom of at-risk students in which there are several special needs children or children from limited English proficiency families might need to be smaller than a classroom without these added instructional challenges.

Another area of widespread agreement is that increased professional development for teachers leads to improvements in classroom quality. However, here again the research has not consistently identified and replicated the amount of professional development that leads to improved quality. The most commonly discussed benchmark, which is advocated by NIEER, is 15 hours of in-service training per year for preschool teachers. This appears to be based on the 1989 final report of the National Child Care Staffing Study, which found that teachers with 15 hours or more of in-service training engaged in more appropriate caregiving than teachers with less than 15 hours. However, many early childhood experts indicate that 15 hours of professional development is much too low a threshold, though a specific higher threshold level has not been identified.

In general, many early childhood education experts agree that process-oriented standards, such as teacher interactions with students and whether the classroom embodies a positive climate, are a better way to gauge preschool program quality than using structural measures. However, as discussed in Chapter 4, measuring process standards is labor intensive and therefore can be expensive. Consequently, structural standards may be useful for establishing a minimum or baseline level of program quality. The challenge is determining which structural standards are useful; there is also a risk that some standards, such as those related to teacher characteristics, may exclude very good teachers that do not meet a particular benchmark.

A further consideration is that the need for structural standards may depend on the delivery system for a state-supported preschool program. The need may be less when preschool programs are delivered primarily through the public school system due to the standards already in place for public schools. However, if preschool is administered through a mixed delivery model that relies heavily on private providers, as is being considered for the Governor's proposed expansion of the VPI program, structural standards may help to establish a minimum level of quality across a wide range of provider types.

Structural standards may help establish a minimum level of quality across a wide range of provider types in a mixed delivery model.

VPI Meets Many but Not All of the NIEER Quality Standards and NAEYC Accreditation Criteria

Two of the most widely referenced sets of standards for ensuring quality preschool have been developed by NIEER and NAEYC. NIEER was established at Rutgers University's graduate School of Education with a grant from The Pew Charitable Trusts and is part of the Trusts' seven- to ten-year grant-making strategy to ensure universal, voluntary access to high-quality early education for three- and four-year old children. NAEYC was founded in 1926

and is dedicated to improving the well-being of young children, with particular focus on the quality of educational and development services for children from birth through age eight. The NIEER standards are specific to preschool programs, while NAEYC has developed standards that cover infant programs through kindergarten.

The VPI program appears to meet many of the standards advocated by these organizations. There are a few notable standards that remain unmet at the State program level. However, in some cases, most local VPI programs are meeting these standards even though they are not required to do so by the State.

NIEER Quality Standards. The NIEER National Quality Standards Checklist, which is included in NIEER's annual *State Preschool Yearbook*, specifies ten benchmarks for state standards relating to preschool program quality (Exhibit 4). NIEER indicates that the checklist is not meant to include all the features of a high quality program, but rather a minimum set of criteria needed to ensure effective pre-kindergarten programs. As stated by NIEER, "These benchmarks may be viewed as necessary, though not entirely sufficient, conditions for highly effective preschool education." As with structural standards generally, the NIEER checklist focuses primarily on the policy requirements for state pre-kindergarten programs rather than the implementation of these policies.

The NIEER Quality Standards Checklist covers preschool educational standards, teacher credential and training requirements, class size and staff-child ratios, comprehensive services and meal requirements, and monitoring requirements. With regard to educational standards, NIEER recommends that early learning standards should be comprehensive in covering the range of areas essential to children's learning and development. Specifically, NIEER indicates that early learning standards should cover all areas identified by the National Education Goals Panel, which are children's physical well-being and motor development, social/emotional development, approaches toward learning, language development, and cognition and general knowledge.

NAEYC Accreditation Criteria. The NAEYC Early Childhood Program Standards and Accreditation Criteria also include structural quality measures for assessing early childhood programs, although they go further in addressing process-oriented aspects of child care and early learning. All early childhood programs seeking NAEYC accreditation must meet the NAEYC Early Childhood Program Standards and Accreditation Criteria. Whereas the NIEER quality checklist is specific to preschool, the NAEYC criteria cover programs serving infants through kindergarten, though the standards indicate to which child care or early education level they pertain.

Exhibit 4: The National Institute for Early Education Research (NIEER) Quality Standards Checklist

- Comprehensive early learning standards
- Teacher degree – BA
- Specialized training in pre-K
- Assistant teacher degree-Child Development Associate (CDA) or equivalent
- Teacher in-service of at least 15 hours/year
- Maximum class size of 20 or lower
- Staff-child ratio of 1:10 or better
- Required vision, hearing, and health screenings; at least 1 parental support service
- At least 1 meal provided/day
- Site visits required

Source: NIEER, The State of Preschool 2006.

The NAEYC Accreditation Criteria are organized around ten standards for early childhood programs: relationships; curriculum; teaching; assessment of child progress; health; teachers; families; community relationships; physical environment; and leadership and management. Within each of the ten standards are topic areas with associated criteria that further define the meaning of quality in each area.

The NAEYC Accreditation Criteria are much more numerous and comprehensive than the NIEER Quality Standards Checklist. While the NIEER checklist consists of ten structural quality standards for preschool programs, the NAEYC Accreditation Criteria include more than 360 criteria addressing preschool quality. There is a large degree of overlap between the NIEER standards and the NAEYC Accreditation Criteria. However, the NAEYC criteria also cover more process-oriented measures of quality. For example, teacher-student interactions and approaches to teaching are addressed under the NAEYC Relationships and Teaching standards. In addition, the NAEYC standards explicitly address assessments of child progress, programs' community relationships, physical environment, and leadership and management.

Comparison of VPI to NIEER and NAEYC Standards. Virginia's VPI program meets many of the standards identified by NIEER and NAEYC to ensure a quality preschool program. Based on the 2005-2006 school year, VPI met seven of the ten benchmarks on the NIEER Quality Standards Checklist (Table 11). This is slightly higher than the median number of 6.5 benchmarks met across all state preschool programs. (Twelve states do not have state-funded preschool programs.) Only two states—Alabama and North Carolina—had programs that met all ten NIEER benchmarks for the 2005-06 school year.

VPI meets seven of the ten NIEER benchmarks.

As indicated previously, there are more than 360 NAEYC criteria related to preschool program quality. While some standards are similar and related to the NIEER Quality Standards, others identify very specific criteria, such as when hand washing should take place. Table 11 does not attempt to compare VPI to all NAEYC criteria. Instead, the table identifies several standards based on NAEYC criteria that are not included in the NIEER benchmarks, but have been identified in the literature, by early childhood education experts, or by other states as positively related to program quality. These are requiring annual individualized professional development plans for teachers, annual teacher evaluations, child assessments, and developmental screenings for children. VPI appears to meet two of the four standards listed in the table that are based on the select NAEYC criteria.

Table 11 shows that the three NIEER benchmarks that VPI did not meet for the 2005-06 school year are requiring comprehensive early learning standards, requiring lead teachers to have a BA, and requiring assistant teachers to have a CDA or equivalent. DOE staff indicate that they expect VPI will meet the comprehensive early learning standards benchmark for the 2007-08 school year, which will allow VPI to meet eight of the ten NIEER benchmarks, but unless there is a change in State law, the teacher credential benchmarks will remain unmet.

VPI has not previously met the comprehensive early learning standards benchmark because prior to 2007 the *Virginia's Foundation Blocks for Early Learning*, the State's learning standards for four-year-olds, did not include standards for physical and motor development or personal and social development. NIEER requires that these areas be covered for early learning standards to be considered comprehensive. As of 2007, the *Foundation Blocks* include physical and motor development standards, as well as personal and social development standards. As indicated previously, DOE requires through the VPI *Certification of Participation* that local VPI programs align their curriculum with the *Foundation Blocks*. Information collected through site visits by DOE to local VPI programs during the 2005-06 and 2006-07 school years shows that nearly all local VPI programs met this requirement. Only two school divisions were identified as having not aligned their curriculum to the *Foundation Blocks*, and several had efforts underway to meet the requirement this year. Assuming that divisions will continue efforts to align their local curriculum with the revised *Foundation Blocks*, it appears VPI will be given credit for meeting NIEER's comprehensive early learning standards benchmark in the near future.

Table 11: Comparison of VPI to Selected Quality Standards Advocated by Early Childhood Organizations

Selected Standards	Met by VPI?
NIEER Quality Standards Checklist[a]	
Comprehensive early learning standards	No
Teacher degree – BA	No
Specialized training in pre-k	Yes
Assistant teacher degree – Child Development Associate (CDA) or equivalent	No
Teacher in-service of at least 15 hours/year	Yes
Maximum class size of 20 or lower	Yes
Staff-child ratio of 1:10 or better	Yes
Required vision, hearing, and health screenings; at least 1 parental support service	Yes
At least 1 meal provided/day	Yes
Site visits required	Yes
Structural Standards Based on Selected NAEYC Accreditation Criteria[b]	
Annual individualized professional development plans for teachers	Yes
Teaching staff evaluated at least annually	No
Program plan for child assessments	Yes
Children receive developmental screenings	No

[a]Comparisons to VPI reflect the 2005-06 school year.
[b]Comparisons to VPI reflect the 2006-07 school year.

Source: The State of Preschool 2006, NAEYC Accreditation Criteria, DOE *Certification of Participation.*

98 percent of lead VPI teachers hold a bachelor's degree.

The two other NIEER benchmarks that are not met by VPI are requiring lead teachers to hold a BA and requiring assistant teachers to hold a CDA or equivalent. DOE staff indicate Virginia is not able to meet these benchmarks because lead teachers at programs located outside of public schools and assistant teachers are not required by statute to hold these credentials. (Preschool teachers at VPI programs located in public schools must hold a BA according to the State's teacher licensure standards.) In practice, the vast majority of VPI teachers (98 percent in FY 2008) hold a bachelor's degree. A smaller proportion (40 percent in FY 2008) of assistant teachers hold a CDA or higher credential. However, unless or until Virginia requires these credentials of teachers and assistant teachers, VPI will not be able to meet either of these benchmarks in the NIEER Quality Standards Checklist.

Regarding the standards related to the NAEYC criteria on Table 11, VPI meets two of the four standards. The standards that are currently unmet are requiring teaching staff to be evaluated at least annually and requiring developmental screenings for children. However, even though these standards are not required by the VPI program, many school divisions already implement them

at the local level. Of those school divisions with VPI programs responding to a JLARC survey, 93 percent require annual evaluations of teaching staff, and 77 percent require developmental screenings of children.

As indicated previously, the NAEYC standards also include criteria that cover more process-oriented measures, such as teacher interaction with students. Process standards as a means to assess and ensure preschool quality are discussed Chapter 4.

Addressing Additional Structural Standards May Be Helpful in Ensuring VPI Quality

Even though evidence linking several of the NIEER and NAEYC standards to program quality is not conclusive, there are still reasons why the State may want to consider incorporating them into the VPI program. Adopting or encouraging these standards or providing incentives for reaching them could help improve the quality of preschool classes in the current VPI program if divisions have not adopted them already. Moreover, these additional standards may become more important if Virginia expands the VPI program, particularly through the use of private or non-profit child care programs where there may be a greater range in the quality of these programs. Regardless of the standards that are adopted for the program, there needs to be periodic review of standards as the research in this area continues to progress. In addition, the most effective and informative way to achieve program quality may be to incorporate standards, where appropriate, into Virginia's Star Quality Initiative

Encourage Bachelor's Degrees for Lead Teachers. Even though there is not a consensus that requiring lead teachers to have bachelor's degrees results in higher quality preschool programs, NIEER reports that the majority of states have this requirement for their state-supported preschool program. Also, even among early childhood experts that have found only a weak link between lead teachers having a bachelor's degree and preschool program quality, some concede that teachers with bachelor's degrees may be more open to engaging in academic endeavors and supporting professional development efforts. In addition, over half of Virginia's school divisions providing VPI report that requiring lead preschool teachers to have a bachelor's degree helps ensure quality and nearly all Virginia school divisions have this requirement for their VPI lead teachers.

Therefore, although the evidence is not conclusive, there may be benefits to promoting this standard in some form for the VPI program. Given that the vast majority of VPI teachers currently hold

this credential, the most cost effective and least restrictive approach may be to encourage new VPI teachers to hold a bachelor's degree as of a particular year or to require programs to have a specified proportion of teachers with bachelor's degrees in order to receive a particular quality rating (discussed below under quality rating and improvement systems). Also, as will be discussed in Chapter 8, the State could offer a financial incentive by providing a higher per-pupil amount for divisions that meet this standard.

Incentives for Assistant Teachers to Obtain CDAs. In contrast to the relatively large body of research on the issue of bachelor's degrees for lead teachers, there has been comparatively less research on the issue of whether requiring CDAs for assistant teachers leads to improved preschool classroom quality. This standard is also required less frequently by state-supported preschool programs. According to NIEER, only nine of 38 states with state-supported preschool programs require at least a CDA or equivalent for assistant teachers. Of Virginia's school divisions offering VPI, about half indicated that requiring a CDA for assistant teachers is related to quality, though slightly less than one-third of divisions have this requirement locally. However, most divisions that do not require CDAs for their assistants indicated that they still feel their assistants are highly trained.

One concern raised by early childhood experts regarding this standard is with respect to areas where there is a high proportion of limited English proficiency (LEP) students. Experts indicate that in these areas, preschools often employ assistant teachers from the community who are fluent in the children's first language. This can be important for the success of LEP students in the program. However, such assistant teachers may not have the financial resources and/or the language skills to obtain a CDA. Also, a local VPI program with a high proportion of LEP students indicated that requiring a CDA could further restrict an already small pool of assistant teacher applicants. These concerns were also voiced more generally by many divisions in relation to requiring a CDA, and nearly 70 percent of divisions that do not currently require a CDA indicated it would be problematic to do so.

Requiring all current VPI assistant teachers to have a CDA would be a time consuming and potentially expensive process. To successfully meet this standard would likely require additional State financial support. Requiring new teachers to have this credential would be less costly, but it may also exclude teachers with certain skills, such as second language skills, that are very important for certain students. Therefore, rather than requiring a CDA of all assistant teachers, the State may want to increase funds available for current scholarship programs administered through the Department of Social Services designed to aid assistant teachers in

obtaining this credential. The State could also provide a financial incentive in the form of enhanced per-pupil amounts for divisions that employ assistant teachers with CDAs. This may also be necessary because assistant teachers with CDAs may command higher salaries.

Require Annual Evaluations of Teachers. Annual evaluations of all teachers are consistent with efforts to improve professional development, and the results of such assessments could be used to supplement training and inform professional development options. Several early education experts have voiced support for this standard. Though only approximately half of school divisions with VPI programs indicated that this standard is useful in ensuring quality, as mentioned previously, the vast majority already have this standard locally. Because this standard can be a tool to maximize professional development efforts and would not be costly to implement, the General Assembly may want to consider adding it to the list of VPI requirements.

Related to this, the State may want to establish a separate standard requiring individual professional development plans for all teachers. As indicated previously, VPI meets the NAEYC-based standard of requiring annual professional development plans. However, this requirement is currently embedded within several other requirements in the VPI *Certification of Participation*. Given the undisputed importance of professional development, the State may want to establish a separate standard to highlight this issue.

Require Developmental Assessments for All Children. Given that the children served by many state-supported preschool programs are designated as at risk, some early childhood experts and states have indicated that it is prudent for all children to receive developmental screenings upon entering the program. Approximately half of Virginia's school divisions with VPI programs indicated that developmental screenings are helpful in ensuring program quality, although 77 percent currently incorporate this standard into their local guidelines. Developmental screens test not only children's knowledge and academic skills, but also other aspects of child development such as social/emotional skills, language skills, and fine and gross motor skills.

To ensure that students in the VPI program do not have additional factors other than being at risk that may hinder their ability to prepare for and be successful in kindergarten, the General Assembly may want to consider requiring that all children in the VPI program receive developmental screens. Such screens can be administered by local program personnel at a relatively low cost.

Quality Rating and Improvement System Approach to Achieving Program Accountability. An alternative approach to achieving preschool program quality rather than adopting additional standards is through a Quality Rating and Improvement System (QRIS). QRIS is a method to assess, improve, and communicate the level of quality in child care and early education settings. In these systems, early care and education programs are voluntarily assessed and given a rating indicating their level of quality. The quality levels are largely based on research showing which aspects of quality yield positive outcomes for children. States typically have three to five levels of quality, which translate into a number of stars. The star ratings are well publicized as a consumer guide and posted in each early childhood program. Quality rating systems not only define standards for early childhood education and create a framework for accountability, but also establish a network of support and outreach for programs and practitioners, provide incentives linked to achieving and maintaining the quality standards, and improve the information available to parents.

The concept of QRIS is supported by many early childhood experts and continues to be embraced by many states. Thirteen states and the District of Columbia have launched quality rating systems. In 2007, an additional four states were considering legislation to implement a statewide QRIS. More than 30 states are also in the process of exploring or designing a QRIS.

Virginia is currently in the process of piloting its own quality rating system called the Star Quality Initiative. The Star Quality Initiative, which will be piloted in FYs 2008 and 2009, is envisioned for both VPI preschool programs and early childcare programs generally. The Star Quality Initiative is a voluntary program which will use licensing as a foundation and sets a continuum of clearly defined Star levels of increasing quality.

The five standards proposed in the Star Quality program are education, qualifications and training; interactions; staff to child ratio and group size; learning environment and instructional practices; and partnering with families and communities. These standards all have indicators that must be achieved for each Star rating. Because the Star Quality Initiative is still a pilot program, the standards and the elements within the standards are still in draft status.

Incorporating Additional Standards Through the Star Quality Initiative May be Preferable. There are several reasons why using a QRIS approach may be preferable to simply establishing additional standards for VPI, particularly if the State is to expand the VPI program. First, QRIS ratings are public, which would provide parents additional information about preschool programs and, as a

result, put pressure on programs to improve quality. QRIS also provides more information about the quality of programs. Rather than just indicating whether a program meets a particular standard, information is provided on where a program is located on the continuum of meeting the standard. Further, Virginia's Star Quality Initiative includes components designed to support the program, such as program administration, raters to observe and rate programs, mentors to provide technical assistance for programs, and resources and financial incentives for programs.

For these reasons, rather than simply adopting additional program standards for VPI, the State could consider extending the Star Quality Initiative. There has not been a determination as to which of the Star levels would be required for VPI programs. However, required STAR levels could be aligned with existing VPI standards and the various industry standards discussed above. QRIS may not necessarily replace the need for program standards, and some program standards may not be appropriate for inclusion in the Star Quality Initiative. However, QRIS would be a way to provide more detailed information about program quality for both parents and providers, and to provide an incentive to programs in achieving higher standards.

Chapter 4

Assessment of VPI Through Classroom Visits and Observation

In Summary

The Virginia Preschool Initiative (VPI) classrooms observed during the study provide a positive environment for student learning and development of social skills. Most class schedules and observed classes also evidence a balance between intentional instruction and developmental play. An observational scoring system was used that focuses on the quality of interactions among teachers and students; scores for these interactions varied across classrooms, ranging mostly from medium to high quality. The difference between medium quality and high quality was sometimes striking, however. Within the subset of school divisions visited, some significant differences in mean scores were found based on the type of instruction, number of VPI classrooms in the locality, locality wealth, and time during the school year when the classroom was observed. Generally, the classrooms visited scored somewhat higher than a sample of Virginia preschool classrooms that were assessed in a previous study. In light of some of the strengths and weaknesses that were seen through the observation process, seven strategies were identified that could potentially increase consistency in the quality of VPI preschool classes.

A criticism of many states and localities regarding their pre-K efforts is that they have only sought to measure program quality in terms of structural standards, which are easily identified and can be objectively measured (see Chapter 3). While these standards may be useful in promoting or helping to foster a quality classroom environment by ensuring that certain minimum conditions are met, the standards in and of themselves do not guarantee quality.

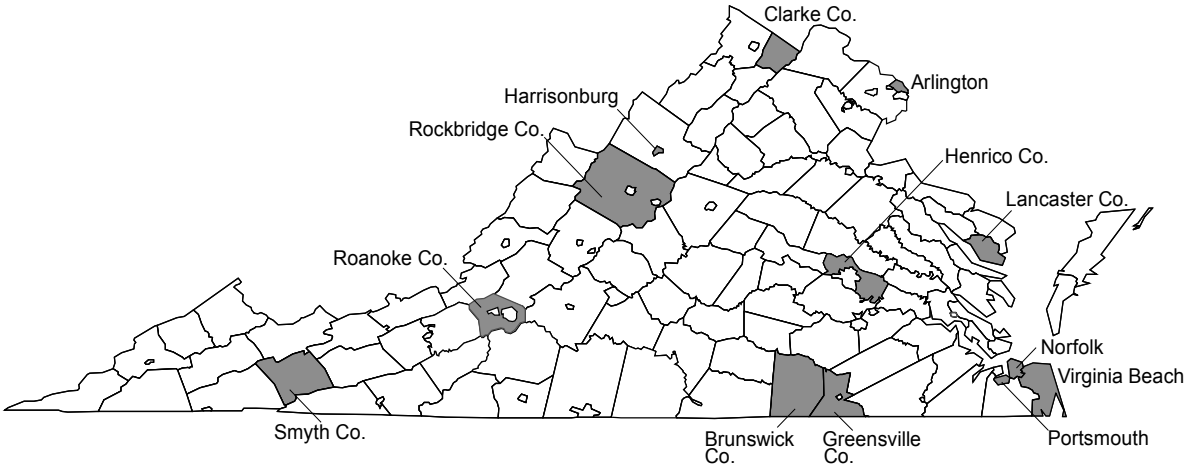
To gain a better picture of quality, classroom observations are considered critical, as noted by an article in *Education Next*:

> The evidence is quite clear that it is the teacher's implementation of a curriculum, through both social and instructional interactions with children, that produces effects on student learning. Classroom observations thus provide the most valid information on the educational experiences of young children.

A problem with using the classroom observation method is that the method is a time-intensive means of assessing quality, particularly for a statewide program such as VPI. For this study, however, JLARC staff were able to observe 31 classes in 24 schools in 12 localities in which the lead agency for the VPI program was a school division, and two classrooms in two different schools in another locality in which the lead agency for VPI is a private provider that contracts with the school division. At least one locality from each of

eight education regions in the State was selected to provide geographic coverage (Figure 5). Localities were selected to provide a mix of urban, suburban, and rural settings with varying degrees of wealth and some socio-economic differences. A more complete description of the selection approach is described in Appendix B. All school divisions which were asked agreed to having their classrooms observed by JLARC staff.

Figure 5: VPI Classrooms Were Observed in 13 Localities



Source: JLARC staff graphic.

OBSERVATION SCORES WERE TYPICALLY IN THE MEDIUM TO HIGH QUALITY RANGE

To assess preschool quality in the classrooms, JLARC staff received training in the Classroom Assessment Scoring System (CLASS) and were rated as reliable raters using that system. CLASS is an instrument that can be used to systematically rate classroom quality based on classroom observations. A manual for using CLASS indicates the system was "designed to create a common metric and vocabulary that could be used to describe various aspects of quality." Four broad areas or domains are identified in CLASS, with 11 factors in those domains for which scoring scales are completed on the CLASS instrument (Table 12).

The score for each factor ranges from 1 to 7. For all factors except "negative climate," scores of 1 and 2 are considered low quality, scores of 3 to 5 are mid-range quality, and scores of 6 and 7 are high quality. (For negative climate, scores of 1 and 2 are best, scores of 3 to 5 are mid-range, and scores of 6 and 7 are low quality).

Table 12: Overview of Factors in the CLASS Framework for Assessing Children's Learning Environment

Factors	Description
DOMAIN 1: EMOTIONAL SUPPORT	
Positive Climate	Reflects the "overall emotional tone of the classroom and the connection between teachers and students." The dimension considers the warmth and respect in interactions, and the degree of enjoyment and enthusiasm displayed.
Negative Climate	Reflects the "overall level of expressed negativity in the classroom", both teacher negativity (anger, sarcasm, irritability) and peer negativity (arguing, aggression, bullying).
Teacher Sensitivity	Assesses the responsiveness of the teacher to students. "The highly sensitive teacher… creates an environment in which students feel safe and free to explore and learn."
Regard for Student Perspectives	Reflects the degree to which interactions and activities are responsive to "students' interests, motivations, and points of view, rather than being very teacher driven." There is teacher flexibility in activities, with some student autonomy in activity initiation.
DOMAIN 2: CLASSROOM ORGANIZATION	
Behavior Management	Reflects the "teachers' ability to use effective methods to prevent and redirect misbehavior by presenting clear behavioral expectations and minimizing time spent on behavioral issues."
Productivity	Reflects teacher efficiency; "considers how well teachers manage instructional time and routines so that students have the maximum number of opportunities to learn."
Instructional Learning Formats	Reflects degree to which teachers maximize learning "by providing interesting activities, instruction, centers, and materials."
DOMAIN 3: INSTRUCTIONAL SUPPORT	
Concept Development	Reflects "the degree to which instructional discussions and activities promote students' higher order thinking skills rather than focusing on rote and fact-based learning."
Quality of Feedback	Addresses whether feedback from teachers to the students is "focused on expanding learning and understanding…"
Language Modeling	Address "the quality and amount of teachers' use of language stimulation and language-facilitation techniques during individual, small-group, and large-group interactions with children.
DOMAIN 4: STUDENT OUTCOMES	
Student Engagement	Reflects "the degree to which all students in the class are focused and participating" in the classroom's learning activity.

Sources: CLASS (Classroom Assessment Scoring System) Manual, Preschool (Pre-K) Version, and Pianta and others, *School Readiness & the Transition to Kindergarten in the Era of Accountability*.

The premise of CLASS is that classroom quality is largely a function of the teacher and student interactions in the classroom. As the CLASS pre-K manual explains,

> The CLASS dimensions are based on interactions among teachers and students in classrooms; scoring for any dimension is not determined by the presence of materials, the physical environment or safety, or the adoption of a specific

curriculum. This distinction between observed interactions and physical materials or reported use of curriculum is important because in most early elementary settings, materials and curriculum are usually prevalent and fairly well organized. In the CLASS, the focus is on what teachers do with the materials they have and in the interactions they have with students.

Additional detail about the theoretical and empirical basis for CLASS is contained in *School Readiness & the Transition to Kindergarten in the Era of Accountability* (Hamre and Pianta, pages 57 to 77).

JLARC staff observed preschool classes in approximately 20 minute increments. Once an observational increment or period was done, staff scored the quality of that class time by completing the CLASS instrument. After scoring the increment, the process was repeated for additional 20-minute increments of class time. In almost all cases, there were two members of the study team in the classroom making the observations. During times that classrooms used small group and center time formats, staff members were generally focused on observing activity in different parts of the classroom.

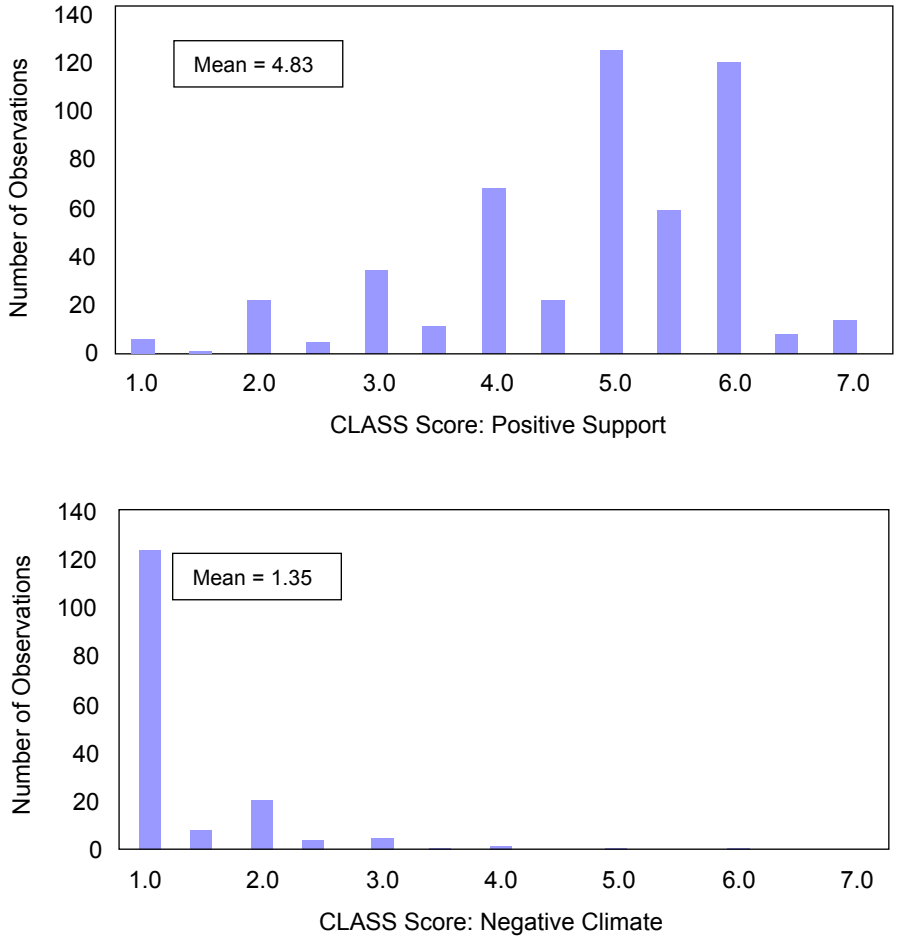
The product from the observations was 167 completed observation sheets, or an average of five sheets per class, with a range from two to ten. Classrooms were observed to the extent feasible within daily schedule constraints and the objective of observing at least two classrooms per division per day in different schools if possible. The observation scores reflect what JLARC staff saw, and are not intended to be a statistical representation of all VPI classrooms or teachers across the state.

Results for Domain 1–Emotional Support

The emotional support domain consists of three indicators for which a high score reflects high-level performance—positive climate, teacher sensitivity, and regard for student perspectives. For the purposes of describing study results, scores in these three categories were combined into a category called "positive support." As can be seen in Figure 6, the classrooms visited by JLARC staff scored well on "positive support." Most observation ratings for the classrooms fell between 5 and 6, or the upper end of mid-level quality and the lower end of high quality. The mean score was 4.83.

The emotional support domain also includes a "negative climate" dimension for which high quality is a low score. Most classroom observation ratings for the VPI classrooms were 1, the best possible score, reflecting an absence of negative interactions.

Figure 6: Classrooms Visited Scored Well on Emotional Support



Note: Positive Support includes the following dimensions: Positive Climate, Teacher Sensitivity, and Regard for Student Perspectives.

Source: JLARC staff site visit observations, May and September-October 2007.

In observed classrooms characterized by upper-middle and high quality emotional support, a warm bond between the teacher and the students is apparent. Teachers seem to enjoy being with the children. Sometimes they get down on the floor to get closer to the students. Smiles and laughter in the classroom are present. The teacher is available as a secure base of support. Children may hug teachers or sit in the teacher's lap. The students also seem to enjoy each other. Although disputes may occasionally break out ("He/she knocked down my tower [of blocks]"), behavior issues are few. When not overly disruptive, children are encouraged to be enthusiastic and excited and express themselves. Teachers are sensitive to the need of children to move about periodically and make some noise. Teachers participate in activities which allow the children and the teachers to be "silly" for a while.

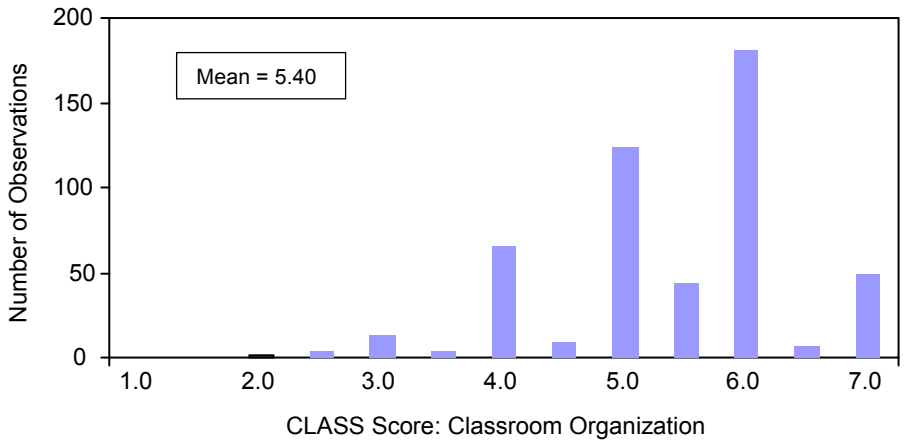
With regard to the negative climate rating, while the great majority of observation ratings were the best score (1), some classrooms scored above a 1. None of the classrooms visited had a negative climate in the sense that children were mistreated or screamed at. However, there were some classrooms in which the interactions between the teacher and the children did not indicate much closeness and neither the teacher nor the children appeared to enjoy being present at the moment. In such classes, the teacher seemed to define their role as keeping the classroom fully in order and children quiet, and became irritated with relatively little provocation.

Results for Domain 2–Classroom Organization Categories

The concept of "classroom organization" loosely holds together items which relate to how teachers organize and manage the behavior of students, the time that is available (productivity), and the provision of interesting activities to hold the attention of students. The principle behind this domain is that "classrooms function best, and provide the most opportunities to learn, when students are well behaved, consistently have things to do, and are interested and engaged in learning tasks" (Hamre and Pianta, 2007).

As indicated by Figure 7, VPI classrooms scored very well on these dimensions, with most ratings between a 5 and a 6. The mean score across the three dimensions was a 5.40; in the dimensions individually, the means were 5.66 for behavior management, 5.45 for productivity, and 5.09 for instructional learning formats.

Figure 7: Classrooms Visited Scored Well on "Classroom Organization" Dimensions



Source: JLARC staff site visit observations, May and September-October 2007.

Behavior Management. Most teachers were able to manage behavior with relatively little visible effort. It seems likely that this was the case because teacher behavior expectations were age appropriate and clear to the students. Behavior management was sometimes skillfully achieved by praise, with the teacher noting by name a child who was doing something right—"I really like the way that [so-and-so] is sitting quietly right now." Students would look at their praised peer and frequently replicate the desired behavior. Center time in many of the VPI classrooms is often noisy and seems somewhat chaotic, but in almost every case observed, student behavior during this time was good.

Productivity. Given the variety of activities pursued in preschool, some time is needed to transition from one activity to another. These transitions can be handled more productively in one of two ways: by minimizing the time spent in transition, or by finding ways to use the time in a way that is productive for the student.

Classrooms utilized some strategies which seemed to help reduce the impact of transitional activities. For example, toward the end of center time, a five minute warning was given so that children would be aware that it was soon time to "clean up." Many classrooms sang the Barney clean-up song during the time for center clean up. One teacher counted to see how fast a child could clean up, and when the child finished, said, "Look how fast you did that."

A bathroom break and hand washing for an entire class can be time-consuming. In many classes which had bathrooms and sinks as part of the classroom, students were relatively free to use the bathroom on an as-needed basis. In a number of classes in which there was a need for the entire class to have a bathroom and hand washing opportunity, the teacher would work with the class in a whole group, reading a story, while the instructional assistant would pull children out of the group one-by-one and provide assistance to the child as needed. In this way, most of the class could be engaged in an activity throughout the bathroom break and hand washing time frame.

Instructional Learning Format. Most of the teachers observed were very good at utilizing the materials available to them to engage the students. Most teachers had a sense for the songs, stories, and activities that would engage a four-year-old child, and they added value to the activity with their energy and expressiveness.

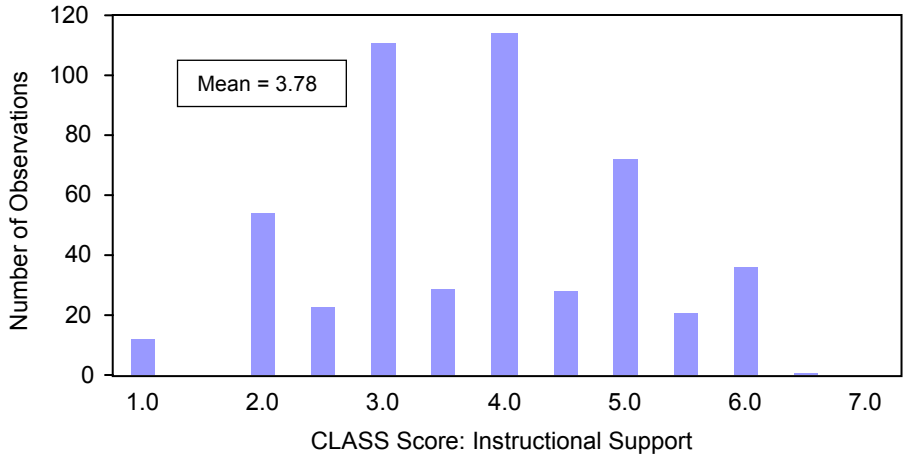
The worst scores on this dimension tended to occur in whole group situations in which the teacher intends to read a long story to the class, but does so inexpressively, and fails to capture the children's interest and imagination. This is also a difficult situation from a behavior management perspective. In the cases in which this was ob-

served, story time was filled with frequent demands by the teacher for behavior corrections or threats of future punishments.

Results for Domain 3–Instructional Support Categories

In the VPI classrooms visited, teachers worked with the children on academic content, such as counting, letters and sounds, writing names, and knowing the days of the week and the months of the year. Classes also covered topics such as weather and seasons. However, CLASS scores for the classrooms were generally lower for instructional support (concept development, quality of feedback, and teacher contributions to learning format) than the other domains. As indicated in Figure 8; scores in these categories were most frequently in the mid-level of performance between 3 and 5, with an average of 3.78.

Figure 8: Instructional Support–Number of Observations by CLASS Score



Source: JLARC staff site visit observations, May and September-October 2007.

Teachers scoring more highly on the CLASS instructional support domain tend to ask more open-ended and thought-provoking questions and focus less on rote learning. They give feedback to students that is specific about what they like and do not like, which fosters learning or understanding, and use generic praise less ("nice job").

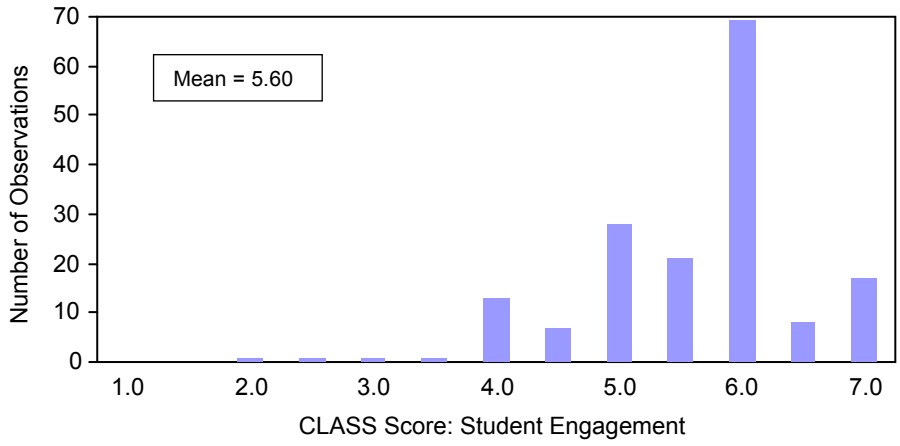
Results for Domain 4–Student Engagement

CLASS also includes a student engagement rating scale which yields a score for the "student outcomes" domain. Student engagement addresses the extent to which most students are interested and engaged with classroom activity. It is, in a sense, an outcome—it is a

desired result that is likely to stem from quality teacher performance in the other domains. The CLASS manual notes that there are some similarities between the "instructional learning format" dimension and "student engagement," but the key difference is that the latter focuses only on students while the former "focuses on the what the teacher is doing to promote engagement."

Figure 9 shows the observation ratings for student engagement. VPI classroom scores in this category are fairly strong. The majority of ratings are six and above, a high quality level. The mean for all observations is 5.60. In most settings observed, children were engaged with the class activities. The one setting where engagement issues seemed to surface was whole group story time. Overly long stories that fail to capture the imagination of students, and that are read with limited expression and student participation, can result in student disengagement from the classroom.

Figure 9: Student Engagement–Number of Observation Ratings by CLASS Score



Source: JLARC staff site visit observations, May and September-October 2007.

FACTORS WHICH MAY ACCOUNT FOR SOME SCORE DIFFERENCES INCLUDE LOCALITY WEALTH AND TIME OF YEAR

JLARC staff examined the CLASS scores, and separated the scores into two categories across four variables, to see if there are factors which may account for some score differences (see Table 13). Observation periods in which the children were engaged in center time had mean scores that were significantly higher than other class activities in three dimensions: "regard for student perspectives," "language modeling," and "student engagement." Center time is characterized by student activity choices, and teachers and aides have

more opportunity to communicate in more depth with one or a few students than in some other formats.

Classrooms visited that were in divisions with a large VPI program had significantly higher mean scores than other classrooms in five dimensions, and classrooms in divisions with higher locality wealth (as measured by the composite index, a measure of local ability to pay used by the State in funding K-12 education) had significantly higher mean scores in seven dimensions. Also, as a group, classrooms visited in the spring (toward the end of the 2006-07 school year) had significantly higher mean scores on seven dimensions than classrooms visited in the fall (toward the beginning of the 2007-08 school year). This might be expected, as teachers and students last spring had the benefit of almost a full school year to bond and to be clear regarding classroom norms and expectations.

Table 13: Four Factors Appear to Account for Some Differences in CLASS Observation Scores

	Type of Instruction		Size of VPI Program		Locality Wealth		Observation Time	
CLASS Domain	Center Time (n = 51)	Not Center Time (n = 116)	Large Programs (More Than 5 VPI Classes) (n=86)	Small Programs (Less Than 5 VPI Classes) (n=81)	Higher Locality Wealth Measure (n=81)	Lower Locality Wealth Measure (n= 78)	Spring Visits (n= 65)	Fall Visits (n=102)
Positive Climate	5.25	5.05	5.16	5.06	5.19	4.90	**5.49**	4.87
Negative Climate	1.32	1.36	**1.22**	1.49	**1.17**	1.56	1.33	1.36
Teacher Sensitivity	5.11	4.82	**5.14**	4.67	**5.13**	4.57	**5.19**	4.73
Regard for Student Perspectives	**5.64**	3.97	**4.86**	4.08	**4.80**	4.02	**4.78**	4.29
Behavior Management	5.78	5.60	5.78	5.52	**5.88**	5.46	5.64	5.67
Productivity	5.42	5.46	5.55	5.33	5.48	5.37	5.60	5.35
Instructional Learning Format	5.02	5.12	5.17	4.99	**5.33**	4.76	**5.30**	4.95
Concept Development	3.50	3.50	3.66	3.33	3.50	3.42	3.62	3.43
Quality of Feedback	4.12	3.81	**4.17**	3.62	3.99	3.68	**4.18**	3.72
Language Modeling	**4.31**	3.76	**4.12**	3.72	**4.11**	3.70	**4.25**	3.72
Student Engagement	**5.88**	5.47	5.56	5.64	**5.75**	5.42	**5.87**	5.43

Note: Underlined mean scores are significantly higher (or in the case of negative climate significantly lower) at a 95% confidence level.

Source: Analysis of CLASS observation ratings by JLARC staff.

CLASS RATINGS FOR VISITED VPI CLASSROOMS WERE SOMEWHAT HIGHER THAN SCORES FROM PRIOR MTP STUDY

Previously in Virginia, a project was undertaken by University of Virginia staff using the CLASS instrument to assess classroom quality in randomly selected divisions with preschool in the schools. This project was called the "MyTeachingPartner (MTP) Study." MTP is a professional development approach that involves consultation and web-based resources such as training videos to provide classroom-focused training. For a year during the MTP study, teachers who agreed to participate in the study sent in videotapes of their classrooms. The videos were then reviewed and scored on the CLASS dimensions by trained graduate students. Data from the first year of the study are reported in the CLASS Pre-K Manual.

Table 14 compares the mean observation sheet scores for JLARC-visited classrooms with the mean classroom scores from the MTP study. Since CLASS scores range from 1 to 7, there is a 6-point potential spread in scores. In all cases, the mean scores from the JLARC observations sheets were higher than the mean classroom scores in the MTP study. For the instructional support domain, there was almost a full point difference. Differences were smaller in other domains.

Table 14: JLARC-Visited Classrooms Scored on Average Between 0.19 and 0.98 Points Higher Than MTP Classrooms

Category	Mean Scores, JLARC-Visited Classrooms	Mean Scores, MTP Class-rooms	Difference
Emotional Support			
(with reversed negative climate)	5.29	5.07	+ 0.22
(without negative climate)	4.83	4.64	+ 0.19
Classroom Organization	5.40	4.97	+ 0.43
Instructional Support	3.78	2.80	+ 0. 98
Student Engagement	5.60	4.92	+ 0. 68

Source: JLARC staff analysis.

There are some similarities in the areas of greatest strength and weakness in the classrooms visited by JLARC and the MTP classrooms (see Table 15). In both cases, the categories of behavior management, student engagement, productivity, and positive climate ranked in the top four. Also in both cases, the instructional learning format category ranked fifth. The teacher sensitivity and regard for student perspectives categories held either the sixth or seventh best score. The language modeling and quality feedback categories held either the eighth or ninth best score, and concept development was the lowest score in both cases.

Table 15: There Are Some Similarities in Dimensions With Relatively High and Low Scores in the JLARC-Visited and MTP Classes

	Rank of Scores, JLARC-Visited Classrooms	Rank of Scores, MTP Classrooms
Behavior Management	1	3
Student Engagement	2	4
Productivity	3	1
Positive Climate	4	2
Instructional Learning Formats	5	5
Teacher Sensitivity	6	7
Regard for Student Perspectives	7	6
Language Modeling	8	9
Quality of Feedback	9	8
Concept Development	10	10

Source: JLARC staff analysis and CLASS Technical Manual.

But at the dimension level, for most categories, the mean observation sheet scores of the classrooms visited by JLARC staff exceeded the mean scores of the MTP classrooms. Table 16 shows the mean scores by dimension from the two studies.

Table 16: Comparison of Mean Observation Scores for the JLARC-Visited and MTP Classrooms

	JLARC-Visited Classrooms	MTP Classrooms
Positive Climate	5.11	5.21
Negative Climate	1.35	1.63
Teacher Sensitivity	4.91	4.34
Regard for Student Perspectives	4.48	4.36
Behavior Management	5.66	4.94
Productivity	5.45	5.41
Instructional Learning Format	5.09	4.57
Concept Development	3.50	2.69
Quality of Feedback	3.90	2.87
Language Modeling	3.93	2.85
Student Engagement	5.60	4.92

Source: JLARC staff analysis of classroom observation sheets and CLASS Technical Manual.

ACTIONS COULD BE TAKEN TO MORE CONSISTENTLY ACHIEVE HIGH QUALITY IN VPI CLASSROOMS

The site visits and classroom observations for this study were a unique opportunity to see VPI classrooms in different parts of Virginia. Some of the differences between classrooms were striking. Seven actions are identified which may help to increase consistency in the quality of preschool classes. The initial three actions are suggested based upon the perspective upon classroom quality that is fostered by the CLASS rating system. The final four actions are

based on general observations of opportunities for improvement from the site visit process.

1. Implement Strategies to Identify and Decrease Teacher Rigidity in Classrooms

Most observed VPI classrooms had teachers who established a very positive climate in their classroom, in which student participation and enthusiasm was supported, and fun and noise were allowed within reasonable limits. In contrast, the attribute which seemed to most negatively impact the climate of a classroom was excessive rigidity or control on the teacher's part. One of the negative manifestations of overcontrol that was sometimes seen was "discipline by reputation." In some instances, a student, apparently known as being more disruptive than others, was verbally admonished or removed from the group when he (in all cases, it was a boy) had done nothing discernibly wrong or different than his peers. Another manifestation was the dampening of student enthusiasm due to overconcern with keeping the classroom "quiet."

2. Increase the Awareness and Attention Given to Concrete Learning Possibilities Existing in Play Centers

Across the classrooms visited, there is a core group of center time stations which are almost always present, as well as some unique stations. During center time, teachers would, with varying degrees of enthusiasm, move about the room and drop in on centers to observe or ask questions or participate.

However, the questions asked by teachers and assistants, and the quality of feedback that teachers gave students in the centers, did not lead to very high scores in the instructional support domain. Teacher interactions with students often did not provide evidence that they had given much creative forethought as to what learning possibilities and concept development opportunities could be triggered in the centers. These interactions seemed to suggest that either better centers are needed, or, perhaps more likely, that additional forethought or training needs to revolve around the teacher's role in center time.

3. Train and Plan in Advance for Higher Quality Feedback

In many instances, the feedback given to pre-K students in the classroom was perfunctory. Feedback was often in the form of unspecific praise, such as "Great job," or "I like your picture." With additional forethought and practice, it appears that instructors could enhance the quality of feedback they give. They could provide more specific details about what in particular they liked about a child's

drawing, or provide some feedback that could lead to further discussion with the student.

4. Share Activities That Engage Students

During the site visits, JLARC staff witnessed numerous songs, recordings, and props that appeared to add greatly to student enthusiasm and engagement in the class. Examples ranged from the Dr. Jean song "Who let the [letter] out?" to the "Humpty Dumpty" song, or from the story "We're going on a bear hunt" to Mr. M and the Land of the Little People. However, staff in different divisions are often familiar with some but not all of the engaging options that are available. There currently is very little communication across divisions among VPI coordinators and VPI teachers to facilitate the sharing of activity ideas which have been found to engage students.

5. Review Schedules for Effective Use of Time

In the morning, when the children are fresher, VPI classrooms often bustle with the children spending time in whole group and small group instruction as well as center time. Afternoons are usually less useful instructionally, with naptimes and preparations for dismissal. As noted in Chapter 2, there are differences in the extent to which current daily schedules strive to maximize learning opportunities and provide for intentional instruction as well as creative play. School divisions should review preschool teacher schedules to help ensure that the schedules provide for an effective use of the available time.

6. Consider Space Needs in Facility Planning, and Recognize the Ongoing Need to Update Preschool Equipment

Some preschool classrooms are in elementary school classrooms that were designed with higher grade levels in mind. A good preschool classroom requires substantial floor space because the various centers that are available for center time can take up substantial floor space. On the site visits, a classroom of about 840 square feet felt cramped for floor space with the centers that were in place. Classrooms of 1,040 to 1,090 square feet appeared more spacious. To the extent feasible, school divisions should seek to provide classroom spaces for preschool which allow a reasonable amount of floor space to be available even after accounting for the space needs of activity centers.

While most observed VPI classes appeared to be well-equipped, there were some schools which did not appear to be replacing equipment on a timely basis. For example, one school visited was in the process of replacing computers in its classroom that dated from

1992. When JLARC staff entered a classroom in that school, a teacher was lying on the floor with a tool making a repair to old equipment in the housekeeping center of the classroom.

7. Utilize Teacher Aides Better and Consider Compensation Levels

With many VPI classrooms consisting of 14 to 18 children, it is the presence of an instructional aide in the classroom which provides for an improved child-to-adult ratio. However, classroom observation work indicates that the extent to which aides interact with the children and are given responsibilities that seem to add value to the classroom appears to vary widely. Ideally, aides should be well-equipped to run small group sessions and to provide for concept development and quality feedback in center time. To increase consistency in the quality of instructional aides that are available, they need to be included in professional development opportunities. To increase the professionalism of the position, some consideration could be given to increasing the low pay levels for the positions noted in Chapter 2.

Chapter 5

Assessment of VPI Using Test Results

In Summary

Analysis of preschool and kindergarten literacy test results showed a strong association between VPI participation and test scores. VPI students performed better than predicted on these tests and had higher kindergarten readiness scores than other students on average. Compared to the fall of the pre-K year, spring pre-kindergarten literacy test scores for VPI students were nearly 21 points higher than would be predicted based on just the increasing age of the students. In the fall of the kindergarten year, VPI students fared better than other students on a literacy test, with only 11 percent scoring below the benchmark for kindergarten preparedness, compared to 17 percent of all kindergartners. The average summed score of VPI students on the fall kindergarten literacy test was three points higher than for non-VPI students. The performance by VPI students on these tests is impressive when it is considered that the VPI students are at-risk children who are in the program due to concerns about their prospects for succeeding in school.

Longer-term student-level data are still needed to better assess the impact of VPI on test scores in later grades. Division-level analysis of 2006 test results at the third and fifth grade levels produced unclear results. Data recently available and analyzed by the Department of Education (DOE) indicates that third grade students with publicly funded pre-K experience had somewhat higher SOL pass rates than other economically disadvantaged students. DOE has implemented a means of identifying the preschool experience of students beginning with the 2006-07 academic year, which should enable a longer-term student-level analysis of VPI effectiveness in future years.

The purpose of the Virginia Preschool Initiative (VPI) is to prepare at-risk children for kindergarten and to increase their chances for success throughout school. The effects of the VPI program on students' readiness and school performance were assessed by analyzing standardized test scores administered to preschoolers, kindergartners, students in the third grade, and students in the fifth grade. The Phonological Awareness and Literacy Screening (PALS) assessment was used to determine the effect of VPI on kindergarten readiness, while the third grade and fifth grade Standards of Learning (SOL) tests were used to consider the longer term effects of VPI on school performance.

VPI HAS A POSITIVE EFFECT ON PRESCHOOL AND KINDERGARTEN TEST SCORES

For the VPI program to be deemed effective, it must be shown that students who complete the VPI program are more prepared for kindergarten than they would be had they not taken the program. To test for kindergarten preparedness, students who completed the VPI program were compared against other kindergartners by analyzing scores on the Phonological Awareness and Literacy Screening (PALS). The PALS assessment for kindergartners (PALS-K) is administered to nearly all kindergarten students in public schools in Virginia, while the PALS assessment for preschoolers (PALS-PreK) is administered to most preschoolers in VPI, Title I, and Head Start classrooms. Scores on the fall 2005 and spring 2006 PALS-PreK assessments were used to gauge the literacy growth in students during the preschool year, while scores on the fall 2006 PALS-K assessment were used to determine how well the VPI program prepared students for kindergarten.

Phonological Awareness and Literacy Screening (PALS) Tool Used to Assess Readiness

The PALS literacy assessments were developed by the University of Virginia (UVA) to provide teachers with a mechanism for identifying children who may need additional instruction in reading. PALS is supported by a grant from the Virginia Department of Education through the Early Intervention Reading Initiative, and it has become the State's tool for literacy screening of kindergartners. Nearly all (98 percent) school divisions in Virginia use the PALS screening tool to assess the reading ability of their kindergartners.

The PALS assessment for kindergartners (PALS-K) measures children's knowledge in several fundamental areas of literacy: rhyme awareness, beginning sound awareness, alphabet knowledge, letter sounds, spelling, concept of word, and word recognition. Scores for each component are summed together, and students with a summed score below a set benchmark score are identified for further instruction in addition to their normal classroom instruction. In fall 2006, 87,597 kindergartners were administered PALS-K, and 15,011 were identified for further instruction.

The PALS-PreK assessment is similar to PALS-K but is designed for four-year-olds. The test measures preschoolers' developing knowledge of fundamentals that are necessary for literacy. Preschoolers are tested on six different components: name writing, alphabet knowledge, beginning sound awareness, print and word awareness, rhyme awareness, and nursery rhyme awareness. These components are predictive of future reading success. The

test is administered in the fall to help guide instruction during the year and again in the spring in order to evaluate the progress of the students. Unlike the PALS-K assessment, there is no summed benchmark score for the PALS-PreK. However, for this report, JLARC staff used the sum of the six task scores as a measure of students' overall growth in literacy skills during preschool. During the 2005-06 academic year, more than 17,000 preschoolers were administered the fall and/or spring PALS-PreK assessment.

Computation of PALS-PreK Score

PALS does not report an overall score for the PALS-PreK assessment. JLARC staff summarized the scores of the six components by adding them together to represent overall knowledge in the fundamentals necessary for literacy. Separate analyses of each of the six components produced results very similar to those shown for the summary scores.

Because PALS only tests children's literacy skills, the tool is limited as a measure of kindergarten readiness. The PALS screening tool does not assess children's ability in math, nor does it assess children's social skills. Another drawback with the PALS-PreK test is that not all school divisions administered the test or submitted the results to the PALS office at UVA. A number of school divisions, including Fairfax County (the largest school division in the State), did not submit PALS-PreK results in 2005-06. (Localities were not required to report PALS-PreK results to the PALS office.) Despite these limitations, PALS is still the best available measure to use for determining knowledge growth in preschool and kindergarten preparedness across Virginia.

Estimation of Predicted PALS-PreK Scores

Estimation was conducted using ordinary least squares regression analysis. The fall 2005 PALS-PreK summed score was predicted based on students' age, gender, race/ethnicity, socioeconomic status (the percent of students in the school division participating in the free lunch program), local adult educational attainment (the percent of adults in the school division with at least a bachelor's degree – a proxy for parents' educational attainment), and whether or not the student needed special instructional services.

All of the independent variables, with the exception of adult educational attainment, had significant effects on predicting PALS-PreK scores.

VPI Students Show Growth in Literacy Skills Over the Course of the Preschool Year

The sum of the six task scores of the PALS-PreK fall and spring assessments were compared to determine the extent to which preschool students in VPI classrooms developed literacy skills. An increase in scores between the two assessments indicates that students have developed their ability to read and write, and therefore may be better prepared for kindergarten. From fall 2005 to spring 2006, the average summed score for all preschoolers on the PALS-PreK increased by 27 points (Table 17). Students in Title I classrooms experienced the largest average increase (29.8 points), while students in VPI classrooms experienced the second largest average increase (27.9 points).

Although the increase in scores shows literacy growth, students might be expected to score higher in the spring simply due to being older. Older children (those who are five years old or nearly five years old) will have had more time to develop their ability to recognize letter sounds, rhyme, and word recognition than younger children (those who recently turned four years old). Thus, demonstrating that scores improved from the beginning to the end of the academic year is insufficient to show that the preschool program was the cause of this improvement.

In order to determine the effect of VPI and the other preschool programs on students' increased literacy knowledge, the age of the

Table 17: Average Score for Preschoolers on PALS-PreK Increased by 27 Points

Preschool Program	Number of Students	Mean Fall PALS-PreK Score	Mean Spring PALS-PreK Score	Change
VPI	8,160	32.2	60.1	27.9
Head Start	2,108	31.2	54.5	23.4
Title I	1,078	30.8	60.6	29.8
Early Childhood Special Education	111	33.7	54.2	20.5
Early Reading First	33	27.9	52.3	24.4
Other/Unknown	696	37.0	62.2	25.2
All	**12,186**	**32.2**	**59.2**	**27.1**

Source: Analysis of data provided by PALS office of the Curry School of Education, University of Virginia.

students at the time of the fall 2005 assessment was used to estimate the effect of age on the fall PALS-PreK assessment. Predicted fall PALS-PreK summed scores were estimated based on students' age and other factors.

The analysis showed that scores between the two tests would be expected to increase by about seven points due to students being older at the time of the spring assessment. However, actual scores increased by about 27 points on average. Therefore, the preschool experience appears to have resulted in a 20-point increase on average in students' literacy scores over the course of the academic year (Table 18). The performance of the preschool programs (that is, the difference between the actual improvement and the expected improvement) was highest among students in Title I classrooms (22.8 points), while students in VPI classrooms performed about 21 points better than expected.

Table 18: Participation in Preschool Programs Appears to Account for 20-Point Increase in PALS-PreK Scores (2005-06)

Preschool Program	Number of Students	Mean Expected Increase	Mean Actual Increase	Difference
VPI	8,160	7.1	27.9	20.8
Head Start	2,108	7.1	23.4	16.3
Title I	1,078	7.0	29.8	22.8
Early Childhood Special Education	111	6.9	20.5	13.6
Early Reading First	33	7.8	24.4	16.6
Other/Unknown	696	6.9	25.2	18.3
All	**12,186**	**7.1**	**27.1**	**20.0**

Source: Analysis of data provided by PALS office of the Curry School of Education, University of Virginia.

There was considerable variation in VPI performance among the school divisions. Among divisions with at least ten VPI students, average increases from fall 2005 to spring 2006 ranged from a high of 42.7 points in Lancaster County to a low of 15.8 points in Clarke County (Table 19). Despite this variation, scores increased more than expected (based on the age of the students) in all divisions.

VPI Graduates Are Better Prepared for Start of Kindergarten Than Other Kindergartners

Scores on the fall 2006 PALS-K test were used to determine the effectiveness of the VPI program in getting children prepared for kindergarten. PALS-K provides a measure of kindergarten readiness through the sum of the seven component scores and the identification of students who may need additional literacy instruction.

Students who score higher on the fall PALS-K test are deemed to be better prepared for the challenges of learning to read and write in kindergarten and beyond. The PALS-K test is also useful for identifying variations in kindergarten preparedness among the school divisions.

Students who were administered the PALS-PreK test in fall 2005 or spring 2006 were identified in the fall 2006 PALS-K database in order to determine the preschool experience of the kindergartners. Nearly 90,000 kindergartners were assessed with the PALS-K in fall 2006. Of these students, 14,592 were identified as having some preschool experience during the previous academic year, and 9,422 were in a VPI classroom. Of the remaining 75,000 kindergartners, the preschool experience is unknown, although it is assumed that many of these students were enrolled in a private preschool program.

The primary purpose of the PALS-K is its use as a screening tool to identify kindergartners who may need additional instruction in order to keep pace with their peers. Students with a summed score below 28 on the PALS-K in fall 2006 were identified as needing literacy assistance. Overall, 17 percent of the kindergartners were identified for further assistance. Students who were in the VPI program, however, fared much better on the assessment, as only 11 percent were identified for further assistance. Table 20 shows the number of students from the various preschool programs that were identified by PALS-K as needing additional instruction.

Students who were in the VPI program fared much better on the PALS-K assessment, as only 11 percent were identified for further assistance.

As can be seen in the table, attending preschool appears to have benefited most children. Except for children who attended early childhood special education or Head Start classes (the most at-risk

Table 19: Increase in PALS-PreK Scores of VPI Students by School Division (Fall 2005 to Spring 2006)

Locality	N	Mean Fall Score	Mean Spring Score	Change	Locality	N	Mean Fall Score	Mean Spring Score	Change
Accomack	61	27.3	55.1	27.8	Pittsylvania	78	26.5	55.2	28.7
Albemarle	79	31.0	59.3	28.3	Prince Edward	79	32.2	63.5	31.3
Alleghany	12	42.8	62.6	19.8	Prince George	76	31.7	57.6	25.8
Amelia	17	33.5	55.3	21.8	Pulaski	54	30.3	60.3	30.0
Amherst	26	40.3	65.0	24.7	Roanoke County	89	37.1	55.3	18.2
Appomattox	42	32.4	64.2	31.9	Rockbridge	41	33.9	56.6	22.7
Arlington	242	24.9	57.8	32.9	Rockingham	178	25.8	56.8	31.0
Augusta	93	25.4	50.3	24.9	Russell	102	36.8	64.0	27.2
Bedford	73	34.9	61.8	26.8	Shenandoah	41	19.5	60.8	41.3
Brunswick	56	31.7	58.9	27.2	Smyth	110	35.2	63.3	28.2
Buchanan	63	39.2	59.8	20.6	Southampton	48	31.4	58.9	27.5
Buckingham	49	36.2	62.4	26.2	Spotsylvania	63	29.5	61.1	31.7
Campbell	118	30.6	53.3	22.8	Surry	30	30.1	69.0	38.9
Caroline	35	32.6	60.9	28.3	Tazewell	63	40.1	65.6	25.5
Carroll	70	27.9	59.2	31.2	Washington	53	36.1	66.4	30.3
Charles City	15	42.8	65.6	22.8	Westmore-land	15	27.5	62.9	35.3
Clarke	45	35.6	51.4	15.8	Wise County	76	29.6	61.3	31.7
Culpeper	57	31.1	61.5	30.4	Wythe County	91	35.7	61.9	26.2
Cumberland	58	30.9	59.1	28.2	Alexandria	63	35.4	56.3	20.9
Essex	16	29.5	60.0	30.5	Charlottesville	107	29.4	60.1	30.7
Floyd	17	38.5	61.9	23.4	Danville	96	22.3	62.4	40.2
Fluvanna	32	29.4	61.8	32.4	Fredericks-burg	14	19.6	46.9	27.3
Franklin County	182	29.8	61.1	31.4	Hampton	377	32.8	59.7	26.9
Grayson	17	28.6	48.2	19.5	Harrisonburg	15	13.9	47.5	33.6
Greene	30	30.9	66.7	35.8	Martinsville	34	36.3	60.6	24.4
Greensville	39	27.4	61.3	33.9	Lynchburg	183	33.7	62.5	28.8
Halifax	127	33.3	62.6	29.3	Norfolk	1,354	32.3	60.9	28.6
Henrico	65	21.4	52.3	30.8	Petersburg	149	29.3	57.3	28.0
Henry	159	29.4	59.8	30.4	Portsmouth	371	37.9	65.2	27.3
Isle of Wight	60	28.4	61.1	32.7	Richmond City	726	37.5	64.3	26.7
Hopewell	27	25.0	58.6	33.6	Roanoke City	283	33.3	59.6	26.3
King and Queen	24	34.0	61.6	27.6	Staunton	30	28.9	55.4	26.5
Lancaster	31	21.5	64.3	42.7	Suffolk	153	27.8	57.4	29.6
Louisa	28	20.3	52.0	31.6	Virginia Beach	541	33.1	56.0	22.9
Montgomery	140	27.2	55.2	28.0	Waynesboro	27	31.6	66.5	34.9
Nottoway	25	36.7	58.0	21.3	Williamsburg-James City	72	40.4	59.6	19.3
Page	32	34.4	66.6	32.1					

Note: 35 school divisions, including Fairfax County, did not report PALS-PreK results in 2005-06.

Source: Analysis of data provided by PALS office of the Curry School of Education, University of Virginia.

children), students who attended preschool were better prepared on average than their peers who were in the "unknown" category, based on the PALS-K identification. All kindergartners who did not attend preschool are in the "unknown" category in Table 20, of which nearly 18 percent were identified for additional literacy assistance.

Table 20: Smaller Proportion of VPI Graduates Were Identified as Needing Further Assistance (Fall 2006)

Preschool Experience	Number of Students	Students Needing Assistance [a]	Percent Identified
VPI	9,281	1,060	11.4%
Head Start	2,386	518	21.7%
Title I	1,234	114	9.2%
Early Childhood Special Education	172	43	25.0%
Early Reading First	16	0	0.0%
Other Preschool	1,503	209	13.9%
Unknown [b]	73,005	13,067	17.9%
All	**87,597**	**15,011**	**17.1%**

[a]Students scoring below 28 on the fall 2006 PALS-K assessment.
[b]Students who were not administered PALS-PreK assessment in 2005-06.

Source: Analysis of data provided by PALS office of the Curry School of Education, University of Virginia.

Estimation of Predicted PALS-K Scores

Ordinary least squares regression analysis was used to predict fall 2006 PALS-K scores. Regression models were developed to predict scores for each race, with the independent variables being student age, student gender, percent of adults in the community holding at least a bachelor's degree, percent of students at the school on the free or reduced-price lunch program, and an indicator of whether the student had special instructional needs.

All independent variables were shown to have significant effects on test scores, except for adult educational attainment in the models predicting scores for black and Hispanic students.

While the PALS-K benchmark provides a threshold for identification of those students needing further assistance, the summed score provides another measure of student readiness. The average summed score on the fall 2006 PALS-K for all kindergartners was 56.0. VPI graduates performed slightly better with an average summed score of 58.7, while non-VPI students had an average score of 55.7.

The higher average score by VPI students is impressive considering that they are at-risk children who are enrolled in the program because they are deemed to be at risk of not being prepared for kindergarten. VPI graduates are primarily from low-income families, and their parents are less likely to be well-educated than middle- and upper-income households. Furthermore, VPI graduates are more likely to be in non-English-speaking households and therefore are more likely to have limited proficiency in the English language. Therefore, but for the VPI program, these students would be expected to have lower than average scores on the PALS-K assessment.

In order to attain a more complete assessment of the effectiveness of the VPI program in preparing children for kindergarten, predicted PALS-K scores were developed by controlling for the factors

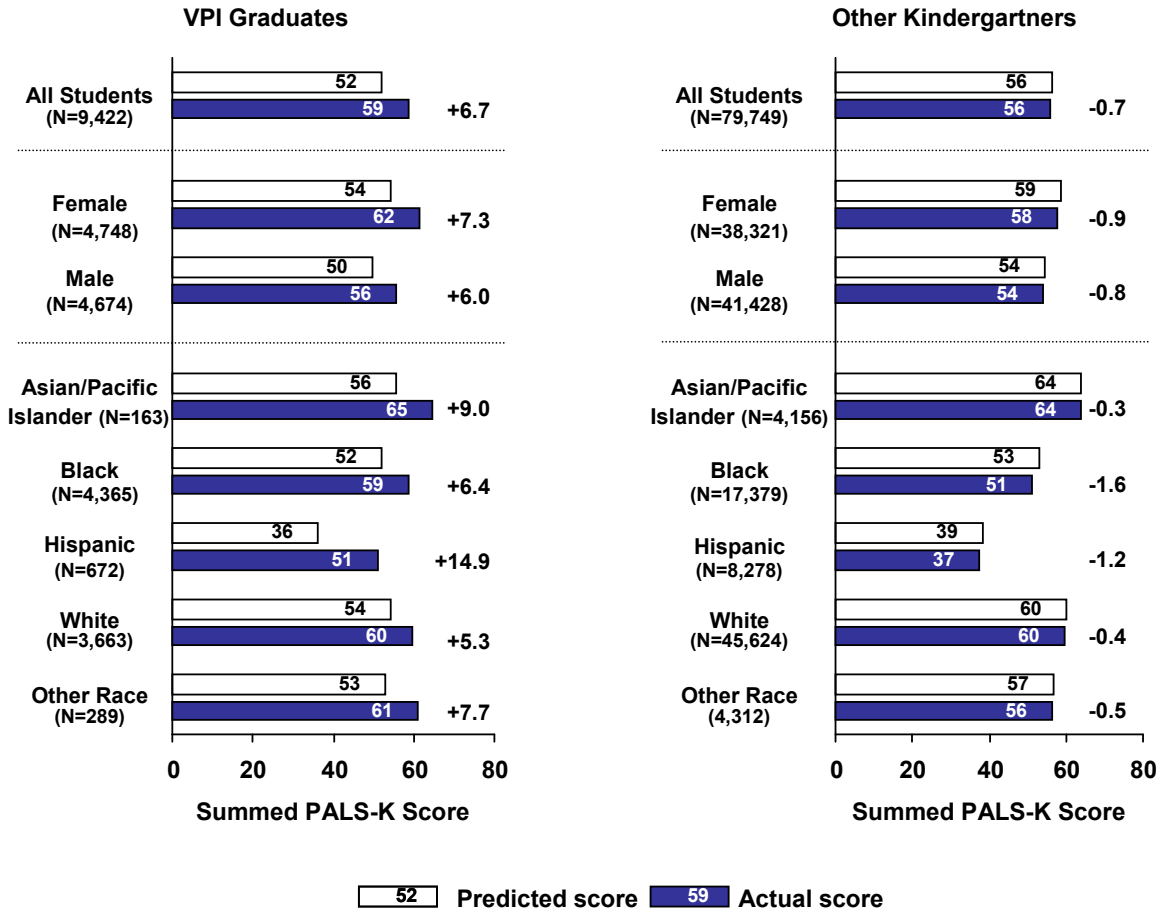
that might influence a child's test scores. The predicted scores were then compared to the actual scores to estimate the extent of the benefits of the VPI program. Appendix D contains more discussion of the analysis used to predict PALS-K scores.

Overall, VPI graduates performed 6.7 points higher on the PALS-K assessment than their predicted score.

Based on the differences between the actual and predicted PALS-K scores, the VPI program appears to have clearly benefited the students who participated in the program. Overall, VPI graduates performed 6.7 points higher on the PALS-K assessment than their predicted score (Figure 10). This increase represents a 13 percent increase over the predicted score.

As shown in the figure, the VPI program provided the most benefit to those students who needed the most assistance with literacy skills, namely, Hispanic students. Hispanic students had the low-

Figure 10: VPI Graduates Performed Better than Predicted on Fall 2006 PALS-K Assessment



Source: Analysis of data provided by PALS office of the Curry School of Education, University of Virginia.

est average score of any ethnic group, with an average summed score of 38.3. Hispanic students who completed the VPI program had an even lower predicted score of 36.1. However, those Hispanic students from the VPI program far exceeded their predicted average with an actual average of 51. Thus, Hispanic students from the VPI program performed nearly 15 points higher than their predicted score, or 41 percent above expectations. In contrast, Hispanic students who did not participate in the VPI program performed slightly below expectations. VPI students performed better than predicted on the PALS-K assessment across all racial and gender groups, while none of the racial or gender groups among non-VPI students performed as well as predicted.

While the VPI graduates statewide performed nearly seven points above their predicted score, there was considerable variation among the school divisions. Among divisions with at least ten VPI graduates, 67 school divisions had average PALS-K scores above their predicted average, while 22 divisions scored below their predicted averages. The list of actual and predicted average scores for each division is located in Appendix D.

The division averages for VPI graduates must be viewed with caution because they may not represent all VPI graduates in the division who were enrolled in kindergarten in fall 2006. Only those students who were administered the PALS-PreK during the prior year are counted in the division averages, and in some cases, these students represent a very small proportion of all VPI students in the division. For example, VPI students from Fairfax County were not included in the PALS-PreK database for the 2005-06 academic year, which is why there are only 27 VPI graduates that constitute the division average for Fairfax. These 27 kindergartners were enrolled in VPI classrooms in other localities the prior year, which presents another reason to be cautious of the data. Because the division averages for VPI graduates include students who attended VPI classrooms in other divisions, these results may not be a true indicator of the success of the local VPI programs.

VPI MAY HAVE POSITIVE IMPACT ON TEST PERFORMANCE IN LATER GRADES, BUT MORE STUDENT TRACKING IS NEEDED

Based on the above analysis, the current VPI program appears to have helped children be more prepared for kindergarten. However, kindergarten preparedness is not the only goal of the preschool program for at-risk children. It is hoped the program's benefits would carry through the children's schooling and lead to better performance throughout the later grades, higher graduation rates, and more productive citizens. Over time, it becomes more difficult to determine the effect of the VPI program, as more events (such as teacher experiences, school environments, peer interactions,

and family life) intervene in the children's development. Thus, it is more difficult to determine the effect of VPI on seventh grade school performance, for example, than on third grade school performance, which is more difficult to determine than the program's effect on kindergarten readiness.

For this study, third and fifth grade Standards of Learning (SOL) data were obtained to consider the impact of VPI on test score outcomes in later grades. The analysis needed to be conducted at the division level, however, because data were not available for the purpose of tracking students from preschool to the most recent year of data available (2006) at the time of the staff analysis. Analysis was conducted at the school division level in an attempt to determine if school divisions in which a greater proportion of their at-risk students were served by VPI performed better on the SOL tests than expected. Recently, The Virginia Department of Education (DOE) conducted a student-level analysis of recently obtained 2007 third grade SOL test scores of economically disadvantaged students who participated in a publicly funded pre-K program, and the results of this analysis are provided herein.

Third and Fifth Grade Standards of Learning Test Results Used to Gauge Student Performance

Standards of Learning (SOL) tests were used to gauge school performance because they are the one standardized measure of academic achievement across all school divisions in the State. Third grade and fifth grade were chosen as the years of analysis because they are the first two grade levels in which the SOL tests are administered to students in Virginia. Given that JLARC staff were unable to track individual students across grade levels, in addition to the other difficulties in measuring preschool effects over time, the earliest grade level SOL tests were deemed to be the most appropriate markers for long-term effects of the VPI program.

SOL test data from spring 2006 in the subjects of English and math were collected at the third and fifth grade levels for all 132 school divisions in Virginia. The average scaled scores and pass rates for the English and math SOL tests were provided by the Department of Education for each school division. The average scaled score is the mean score on the test ranging from 0 to 600. The pass rate is the percentage of students in the division who exceeded the required minimum score of 400. Table 21 shows the statewide average scaled scores and pass rates for the third and fifth grade English and math SOL tests.

Table 21: Pass Rates and Average Scaled Scores on Third and Fifth Grade SOL Tests (2006)

	Third Grade		Fifth Grade	
	English	Math	English	Math
Pass Rate	84%	90%	87%	83%
Average Scaled Score	471	494	482	482

Note: Statewide average based on school division averages weighted by student population.

Source: Analysis of data provided by the Virginia Department of Education.

Since spring 2000, pass rates have increased by about 20 percentage points on third and fifth grade math and English SOL tests

The average scaled scores and pass rates on the SOL tests have increased in recent years. Since spring 2000, pass rates have increased by about 20 percentage points on third and fifth grade math and English SOL tests, and the average scaled scores have increased by about 50 points (Table 22).

Table 22: SOL Scores Have Increased From 2000 to 2006

	Increase in Pass Rate	Increase in Average Scaled Score
Third Grade		
English	+23	+53
Math	+19	+42
Fifth Grade		
English	+19	+48
Math	+20	+58

Source: Analysis of data provided by the Virginia Department of Education.

Effect of VPI on Third and Fifth Grade SOL Scores Is Uncertain Based on Analysis of School Divisions

Unlike the analysis of the effect of the VPI program on kindergarten readiness, it was not possible to track individual students over time to conduct a student-level analysis of third and fifth grade SOL scores. At the time of this study, DOE did not have a mechanism to systematically track VPI students throughout public schools in Virginia. DOE recently conducted a student-level analysis of third-grade SOL pass rates for a small cohort of students who were known to have participated in preschool, but this analysis was conducted on 2007 scores which were released in September and were not available to JLARC staff. The results of DOE's analysis are shown in the following section.

JLARC staff conducted its analysis on 2006 SOL scores, which were the most recent data available at the time. Most third grade students in the spring of 2006 participated in preschool (if at all) in 2001-02. However, the first year in which a sizable number of preschoolers took the PALS-PreK assessment was in 2002-03, and the

PALS-PreK assessment is the basis for identifying the preschool experience of students.

Given that a student-level analysis could not be conducted on 2006 SOL scores, the next best approach would have been to examine the effects of the VPI program at the school level. School performance could be assessed based on the percentage of at-risk students who were served by the VPI program. However, such an analysis could not be conducted at the school level, since it could not be determined where VPI graduates would be enrolled. For example, if VPI classrooms were housed in division-wide centers, then graduates could be enrolled in any number of schools in the division. Furthermore, even when VPI classrooms were housed in public schools, VPI graduates might still be enrolled in elementary schools other than the one in which they attended preschool, as students from across the division could be grouped in a few classrooms.

Since the school-level analysis also was not possible, regression analysis was conducted at the school division level to determine if the proportion of at-risk students served by VPI had an obvious effect on SOL average scaled scores and pass rates. More detail of this regression analysis is provided in Appendix D.

The results of the regression analysis were mixed and did not show a strong, consistent impact on SOL scores due to VPI enrollment. However, this analysis does not necessarily mean that VPI has not had an effect on average SOL scores or pass rates. Rather, the division-level analysis may be too broad to adequately capture the impact of the VPI program on school performance of at-risk children.

One possible reason why the division-level SOL analysis did not yield meaningful results is that overall SOL scores and pass rates have improved over the years, which has led to a corresponding reduction in variation across the divisions. Since 2000, the average scaled score for elementary students increased by about 50 points, an increase of nearly 12 percent. In 2000, ten percent of the school divisions had an average scaled score of less than 400. In 2006, no school division had an average scaled score below 410. As the lower performing divisions have improved more relative to the other divisions, factors such as race and poverty are no longer as significant in explaining differences in SOL scores.

The fact that poorer divisions are recording higher average SOL scores and pass rates indicates that at-risk students may be doing better academically. The VPI program has served at-risk preschoolers since 1996, and may have contributed to the higher SOL

scores. However, the extent of VPI's impact during the 2000 to 2006 time period has not been documented.

At-Risk Children Who Participated in Preschool Programs Had Higher Third Grade SOL Pass Rates Than Other At-Risk Children

DOE was able to track a group of students from preschool through third grade to analyze 2007 third grade SOL test scores. DOE identified 3,466 third grade students who participated in publicly funded preschool programs in 2002-03. Publicly funded preschool programs include VPI, Head Start, Title I, Early Childhood Special Education, and Early Reading First. Based on DOE's analysis, these students had average pass rates that were four to five points higher on the 2007 third grade SOL tests than other economically disadvantaged students (Table 23).

Although DOE was unable to separate VPI students from students in other publicly funded preschool programs, this analysis shows that there appears to be longer term benefits of preschool for at-risk children. However, more analysis needs to be conducted. DOE's analysis only included a small proportion of all students who participated in a publicly funded preschool program and could not isolate VPI students from the group. Furthermore, it is currently not possible to track students beyond the third grade level in Virginia because 2002-03 was the first year that had a sizable number of preschoolers taking the PALS-PreK assessment.

Table 23: Students with Pre-K Experience Had Higher Third Grade SOL Pass Rates Than Other Economically Disadvantaged Students (Spring 2007)

	Economically Disadvantaged Students Who Participated in Publicly Funded Pre-K in 2002-03	Other Economically Disadvantaged Students
Reading	74%	69%
Mathematics	85	81
Science	84	79
History and Social Science	90	86

Source: Virginia Department of Education.

BETTER TRACKING OF LONG-TERM TEST SCORE OUTCOMES FOR VPI GRADUATES SHOULD BE POSSIBLE IN THE FUTURE

The inconclusive results of the division-level analysis of potential VPI impacts on third and fifth grade test outcomes help show the need for tracking VPI graduates throughout their schooling. Because JLARC staff did not have adequate data to enable a student-

level analysis of long-term outcomes of VPI graduates, it was not possible to identify which of the third or fifth grade students who took the SOL tests in 2006 completed the VPI program as preschoolers. Furthermore, DOE's student-level analysis is limited by the size of the preschool cohort. However, DOE has added a new pre-K experience code for students beginning in the 2007-08 school year, which will enable the State to track students who entered a pre-K program in 2006-07 and beyond, and which should enable a more robust analysis of the VPI program in future years.

Schools are now required to attach a pre-K experience code to preschool and kindergarten students in the student data they submit to DOE. The pre-K experience code identifies the current (for preschool students) or most recent (for kindergarten students) preschool experience of the student. The code will enable analysts to determine if the student had one of the following preschool experiences:

- coordinated pre-kindergarten classroom
- Virginia Preschool Initiative
- Title I pre-kindergarten
- Head Start
- coordinated special education
- special education only
- government with tuition charges
- private provider
- licensed family home provider
- no formal or institutional pre-K program
- other

The new pre-K code should enable longitudinal studies of student outcomes based on their preschool experience. The code will also allow for comparisons between preschool arrangements such as VPI, Head Start, Title I, and private programs. Although the code is only applied to pre-K and kindergarten students, the pre-K experience of students in more advanced grades may also be identified by merging different years of student data to match students across years. For example, the pre-K experience of third graders in 2010-11 could be identified by merging that year with the 2007-08 school year and matching kindergarteners from 2007-08 with third graders from 2010-11 through their unique student identification number.

While the new pre-K experience code will help identify many students who completed the VPI program, there may be difficulties identifying the pre-K experience of all students. The ability to accurately identify students will depend on coordination between school divisions and data verification by staff at DOE. Because it is not uncommon for students to move between school districts, new

students enter schools frequently, and the unique student identifier will need to be known for those students who enrolled from a different school division in the State. Otherwise, it would be difficult to track these students from school to school and from year to year. Fortunately, DOE appears to have a system in place to ensure that student identifiers are correctly entered by verifying that identical student names and birth dates have identical student identifiers, in addition to other controls. However, students enrolling in Virginia schools from out-of-state pose additional problems for accurately identifying the pre-K experience of all students. Because of out-of-state students, there will always be a proportion of students whose pre-K experience will be unknown.

Recommendation (1). The Virginia Department of Education should conduct a longitudinal study of students who completed the Virginia Preschool Initiative (VPI) and other preschool programs to determine how these students perform on Standards of Learning (SOL) tests throughout school. The first such study should report on the performance of VPI graduates on the 2010-11 third grade SOL tests.

Chapter 6

Assessment of Pre-K Program Graduates by Kindergarten Teachers and School Principals

In Summary

Kindergarten teacher respondents to a JLARC staff survey had favorable views of the quality of the pre-K program at their school, with 95 percent of respondents rating program quality as either very good or good. On average, teachers indicated that more than 70 percent of their school's pre-K graduates came to kindergarten "very well prepared" academically and socially, with about 20 percent of graduates coming "somewhat well prepared," and less than 10 percent coming "not well prepared." In many instances, respondents indicated that students who were not well prepared had special needs or circumstances.

More than 80 percent of principals responding to the survey saw the pre-K program at their school as "substantially increasing" the academic and social abilities of pre-K graduates entering kindergarten. About 80 percent also saw at-risk pre-K graduates typically faring "equally well" or "better" than other school students over the course of their elementary school experience. A cautionary note, however, is that about 41 percent of principals indicated that the positive effects of the pre-K experience lasted to a grade level which fell short of elementary school completion. Both principals and kindergarten teachers frequently cited an inability to serve more children as a weakness of the program.

Test scores are limited in what they can indicate about the performance of VPI and its students. For example, the tests used in the pre-K and kindergarten analyses address literacy but not other academic skills. In addition, social maturity is part of school readiness, but that is not captured in the tests considered. Therefore, JLARC staff surveyed kindergarten teachers to find out how they rate the social and academic readiness of the pre-K graduates of their school who come into their classrooms. Principals were also surveyed to find out how they see these pupils progressing during their elementary school careers.

Introductory comments on the surveys indicated that the surveys were going to schools with VPI classrooms because the study was about VPI. However, for ease of completion by the teachers and principals, particularly those in schools with blended pre-K classes (VPI-funded students as well as students funded by other programs), kindergarten teachers and principals were asked about the performance of their school's at-risk pre-K program graduates. Thus, some survey responses may address some other at-risk pre-K students in addition to VPI-funded students.

Kindergarten teachers receive the graduates of VPI and other preschool programs into their classrooms, and are in a unique position to comment on the kindergarten-readiness of these students academically and socially. Some academic research has raised questions about how well teachers define and assess "kindergarten readiness," with concerns focusing on how well this is done by teachers with lower education levels. However, in practice, at-risk preschool graduates must respond to the expectations of the kindergarten teacher to whom they are assigned.

KINDERGARTEN TEACHERS INDICATE THAT PRE-K SEEMS TO HELP PREPARE AT-RISK STUDENTS FOR SCHOOL

Surveys were sent to 1,764 kindergarten teachers to seek their perspective on VPI. An effort was made to limit the surveys sent to teachers in elementary schools actually housing a VPI program. As an authoritative listing of VPI schools from DOE was lacking, some teachers received surveys in schools which did not have VPI. Of the 618 surveys returned to JLARC staff (a 35 percent response rate), 495 kindergarten teachers reported that they had at least one graduate of VPI in their kindergarten class in 2006-07. Another 121 teachers did not, and therefore these teachers did not complete the remainder of the instrument.

Before asking the kindergarten teachers about their experiences with their own school's pre-K program and its graduates, the teachers were asked about their general attitude regarding the usefulness of pre-K. Kindergarten teachers were asked if they "think that pre-K programs are a useful vehicle for preparing at-risk children for kindergarten" socially as well as academically. More than 90 percent rated pre-K as "very useful" for kindergarten socially, and just less than 90 percent rated it as "very useful" academically (Table 24).

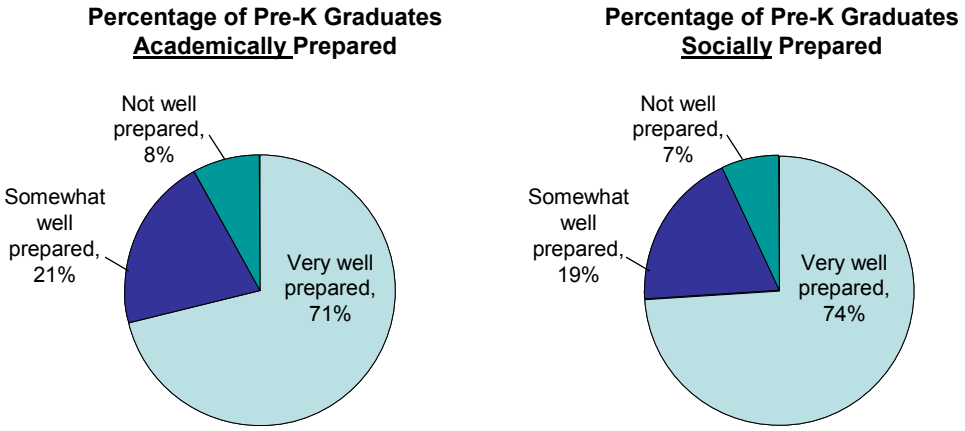
Table 24: Most Kindergarten Teachers View Pre-K Programs as Useful for Preparing At-Risk Children for Kindergarten

Usefulness	Socially	Academically
Very Useful	93%	89%
Somewhat Useful	6%	10%
Not Very Useful	1%	1%

Source: Analysis of May 2007 JLARC staff survey of kindergarten teachers, n = 495.

Kindergarten teachers were then asked about the extent of preparedness in 2006-07 kindergarten class students who had attended a pre-K class at their school. More than 70 percent of the responding kindergarten teachers rated the pre-K graduates as "very well prepared" (Figure 11).

Figure 11: Kindergarten Teachers Report That Most Pre-K Students Are Prepared Both Academically and Socially



Source: Analysis of May 2007 JLARC staff survey of kindergarten teachers in schools with pre-K classes for "at-risk" students.

It should be noted that many teachers commented that a lack of preparedness on the part of some students was not a reflection upon the pre-K program. Some examples of these comments follow:

> The child [in my class] that was not academically successful was developmentally delayed and received no support in the home. His lack of success was not due to the instruction and/or care that he received from the pre-K program.
>
> * * *
>
> One of the three from our school's pre-K program has been in child study for emotional disabilities (screened in child study in pre-K). This child was not as prepared socially and emotionally.
>
> * * *
>
> This particular child has significant developmental delays. While the exposure was beneficial, he wasn't well-prepared academically or socially because of these delays.
>
> * * *
>
> The two students that were not well-prepared have also had trouble in kindergarten. They have been found eligible to receive special education services.

Kindergarten teachers were also asked how they would rate the quality of their school's pre-K program. With 494 responses, the

results were 73 percent "very good," 22 percent "good," 4 percent "fair," and less than one percent "poor" or "very poor."

Kindergarten teachers were also asked open-ended questions about what they saw as the strengths and weaknesses of their school's pre-K program. The leading responses in terms of noted strengths included development of academic and social skills, exposure to school routines, and exposure to appropriate behavior in a school setting. The leading weaknesses noted were an inability to serve more children (cited by about 16 percent of respondents), followed by the need for greater academic preparation (about 8 percent of respondents), the need for more attention to discipline and behavior (about 4 percent), and class sizes that are too large (about 4 percent). Many teachers did not note any weaknesses.

PRINCIPALS THINK THAT PRE-K SUBSTANTIALLY INCREASES AT-RISK STUDENTS' SOCIAL AND ACADEMIC ABILITIES

In the spring of 2007, surveys were sent to 471 elementary school principals to seek their perspective on VPI. (Again, an effort was made to limit the surveys sent to principals of elementary schools housing a VPI program, but this was hampered by the lack of an authoritative listing of VPI schools.) Of the 174 surveys returned to JLARC staff (a 37 percent response rate), 160 principals reported that they had one or more VPI classrooms. Another 14 principals did not, and therefore these principals did not complete the remainder of the instrument.

Principals were asked how they "think that that the preschool experience has typically impacted the social and academic abilities of their school's at-risk pre-K students coming into kindergarten." Table 25 shows the results.

Table 25: All Principals Responding Said Preschool Increased At-Risk Pre-K Student Abilities

Usefulness	Social Ability[a]	Academic Ability[b]
Substantially Increased	89%	83%
Somewhat Increased	11%	17%
Has Had No Effect	0%	0%
Resulted in Negative Changes	0%	0%

[a] n = 157.
[b] n = 156.

Source: Analysis of May 2007 JLARC staff survey of elementary school principals.

To the extent that principals thought that the pre-K experience at their school positively impacts the social and academic success of students, principals were asked, "How long do you typically see

those positive effects continuing?" Table 26 shows the results. About 60 percent saw those positive effects continuing through the completion of elementary school. However, about 40 percent did not see the positive effects lasting through to elementary school completion.

Table 26: Most Principals See Positive Effects of Preschool Continuing

	Percent
Through and including at least the 1st grade year	91%
Through and including at least the 2nd grade year	82%
Through and including at least the 3rd grade year	69%
Through and including the completion of elementary school	59%

Source: Analysis of May 2007 JLARC staff survey of elementary school principals, n = 140 (excludes 20 miscellaneous responses not indicating a grade level or school completion).

Principals were asked how their pre-K graduates performed on third grade SOLs (Table 27). About 44 percent indicated that they could not answer this question or did not know. Very few respondents who could answer the question think that it is typical for the pre-K graduates to score below the SOL pass threshold on this test. Most principals think that pre-K graduates are typically above the pass threshold but not by much, although more than one-quarter think that their pre-K graduates are substantially above the pass threshold.

Table 27: Principal Responses to How Their School's Pre-K Graduates Typically Perform on Third Grade SOL Tests

	Percent (All Responses Included)[a]	Percent (Excluding Don't Know)[b]
Substantially above the pass threshold	15%	27%
Above the pass threshold, but not by much	39%	70%
Below the pass threshold	1%	2%
Cannot answer / do not know	44%	--

[a] n = 151.
[b] n = 84.

Source: Analysis of May 2007 JLARC staff survey of elementary school principals.

Given that pre-K serves children considered at high risk of failing in school, the fact that 79 percent of principals reported that their pre-K graduates typically do equally well or better than other students during their elementary school career is a positive finding.

Principals were asked how they think at-risk pre-K students "typically fare" over the course of their elementary school experience. Table 28 shows these results. Given that pre-K serves children considered at high risk of failing in school, the fact that 79 percent of principals reported that their pre-K graduates typically do equally well or better than other students during their elementary school career is a positive finding.

Principals were also asked how they would rate the quality of their school's pre-K program. With 160 responses, the results were 74 percent "very good," 24 percent "good," and 2 percent "fair."

Table 28: Principals Indicate How They Think At-Risk Pre-K Graduates "Typically Fare" in Elementary School

How Graduates Typically Fare	Percent
They do better than other students.	11%
They do equally well.	68%
They do not do as well, but rarely need to be held back or placed in special education.	18%
They do not do as well and it is not unusual for them to be held back or placed in special education.	3%

Source: Analysis of May 2007 JLARC staff survey of elementary school principals, n = 142.

Finally, principals were asked about what they saw as the strengths and weaknesses of their school's pre-K program. The most frequently noted strengths were (1) the quality of the teachers/staff, (2) social skill development, (3) academic skill development/literacy instruction, (4) the prescribed curriculum or content of the program, (5) parent communication and outreach, and (6) exposure of the students to a school setting, routines, peers, and expectations. Overwhelmingly, the most frequently noted weakness was the inability to serve more children.

Chapter 7

Assessment of State Administrative Support Structures for VPI

In Summary

Because most local VPI programs are administered through the public school system, the State's existing administrative support structure for VPI appears to be largely adequate and only small adjustments are warranted. Approximately two-thirds of school divisions administering VPI indicate that they are satisfied with the State support structures in place, though many indicate that increased communication and coordination among VPI programs would be helpful. If the State expands the VPI program, particularly to include providers outside of the public school system, increased levels of State administrative support would likely be needed. If the State is to increase its level of support, efforts should focus on facilitating increased classroom observations and teacher mentoring and enhancing support for professional development.

Across the country, state administrative support for publicly funded preschool programs ranges greatly. Virginia and some other states provide little administrative support while others provide a much greater level of support. States also vary in their organizational structure for administering and supporting preschool. Some administer their publicly funded preschool programs through the state department of education while others administer preschool through departments that have been developed to coordinate all aspects of early childhood care and learning. Virginia currently administers VPI through the State Department of Education (DOE); however, the development of a State-level office to consolidate early childhood programs in the Commonwealth, including VPI, is currently under consideration.

In terms of the level of State administrative support for preschool, those states with mixed-provider models that include private and non-profit child care facilities outside public schools appear to have the greatest levels of support for their programs. Both states with mixed-provider models and states whose programs are affiliated with the public schools seem to agree that additional levels of support are needed when a mixed-provider model is in place. Because Virginia's VPI program may be expanding and moving towards a more mixed-provider model, it is important to consider the adequacy of existing State administrative support and how best the State could improve its level of support.

STATE ADMINISTRATIVE SUPPORT STRUCTURES APPEAR LARGELY ADEQUATE FOR EXISTING PROGRAM

As mentioned, the level of administrative support and oversight the State currently provides to the VPI program is less than that provided for some other state-supported preschool programs. Virginia's State support largely consists of two part-time consultants that conduct site visits of local VPI programs and one staff person providing technical support to local programs. DOE staff have also developed standards for what four-year-old children should know and be able to do when entering kindergarten.

Site visits to local VPI programs are an important factor in ensuring that local programs comply with the State's standards for the VPI program. Current funding levels of $20,000 annually allow the two part-time consultants to conduct site visits to 75 percent of local VPI programs once a biennium. To ensure every local VPI program gets visited at least once a biennium, DOE staff conduct site visits to the remaining 25 percent of programs. An increase in funding of approximately $10,000 to allow the consultants to visit all programs during a biennium may be warranted to support this effort.

Classroom observations are one component of the site visits. However, the biennual site visits do not include observations of every VPI classroom in the division. Therefore, some classes could go years without being observed by anyone on the State's behalf.

As indicated in Chapter 3, DOE field consultants record the results of their site visits and classroom observations on the *VPI Site Visit Instrument*. DOE staff indicate that the primary purpose of the *Site Visit Instrument* is to ensure that divisions are meeting the State's statutory and administrative requirements for the VPI program. At the conclusion of the site visit, the consultants meet with the local VPI staff to provide feedback and suggestions for improving the program and classroom environment. The consultants do not use a particular assessment tool for their classroom observations, but rather rely on personal expertise in the area of early childhood education.

DOE maintains paper copies of the *VPI Site Visit Instruments* completed by the field consultants, but there is not a formal process for tracking the information on the forms. Also, because the instrument was designed to demonstrate whether local programs are meeting the State's structural program requirements, there is no formal method for tracking specific data on classroom quality that is derived from the classroom observations. To facilitate assessments of overall classroom quality, DOE may want to devise a method to track data on classroom quality.

Technical support provided by DOE to local VPI programs includes disseminating program information, responding to questions, and collecting data. Current data collections request information such as the number of students enrolled, the number of schools or centers with VPI, the number of instructional staff, and the credentials of instructional staff. To supplement this information, DOE should also request local programs to provide the names of schools with VPI classrooms and the number of VPI classrooms by school.

In addition to the site visits and technical support provided by DOE, staff developed *Virginia's Foundation Blocks for Early Learning*, which are the State's learning standards for four-year-olds to prepare them for kindergarten. A curriculum rubric has also been developed to help divisions select curriculum that is consistent with the *Foundation Blocks*.

Because most localities in Virginia (more than 95 percent) administer VPI through the public school division, the existing levels of State administrative support may be adequate for the current program. This is reflected in the response of approximately two-thirds of divisions indicating they are satisfied with the current level of State support (other than financial) for the program. (The remaining approximately one-third of divisions indicated that they were either not satisfied or undecided about the level of State administrative support.) This level of satisfaction is likely because public school divisions have support mechanisms in place from which VPI programs are able to benefit. Even so, current VPI program directors indicate that additional State support would be useful, such as opportunities to facilitate the exchange of information and ideas between local VPI programs. These opportunities, such as conferences for VPI coordinators, would allow coordinators across the State to share information on matters such as specific activities to effectively engage students in learning, and would allow DOE to provide information about updates to the program.

Recommendation (2). The General Assembly may wish to provide the resources needed to enable the Department of Education to (1) facilitate information sharing across local Virginia Preschool Initiative programs about how the programs are being implemented, and (2) keep local program coordinators well-informed of program updates or changes.

IF VPI EXPANDS, INCREASED LEVELS OF STATE ADMINISTRATIVE SUPPORT WILL LIKELY BE NEEDED

If the State expands the VPI program to include more private and non-profit child care providers, increased levels of State administrative support will likely be needed to maintain program quality.

Efforts to enhance State administrative support of local programs should primarily focus in two areas—facilitating increased observations of classrooms and teacher mentoring, and increasing professional development opportunities for teachers. These two factors are largely undisputed as being linked to preschool program quality. They are also the areas mentioned most frequently by school divisions where additional State administrative support would be useful.

Increased Classroom Observations and Teacher Mentoring

There is a general consensus that the best way to determine classroom quality is through classroom observations. Further, the results of such observations can be used to mentor teachers and inform professional development efforts. Therefore, Virginia may want to increase the capability to conduct classroom observations. There are a number of approaches for doing this.

Some states employ or contract with a large number of field consultants to conduct classroom observations and provide mentoring. For example, Georgia has 25 field consultants that visit every preschool classroom twice per year. One visit is for evaluative purposes and the other is to provide technical assistance and mentoring. While this approach ensures a level of consistency among field consultants, it is also expensive and may not be fully embraced by local providers who feel they are being evaluated and supported by outside individuals who are unfamiliar with their unique needs. There may also be concerns over the objectivity of consultants if they are also providing technical assistance, as well as their availability for providing assistance throughout the year.

Another approach advocated by some experts and local school division staff is using local personnel to conduct observations and provide follow-up mentoring and support. For example, a designated local VPI employee could conduct observations and provide technical assistance and mentoring, or certain centers designated as providing high quality programs could conduct observations of and provide mentoring and assistance to other centers. Such an approach would still require State support for training local evaluators and mentors to ensure VPI program consistency across the State. Also, a financial incentive would be needed to compensate individuals for taking on this responsibility. However, this would likely be less costly than expanding the number of contractors or employees at the State level. There is also the benefit that evaluators and mentors would be known by local programs, familiar with their unique regional issues, and accessible to local programs to provide assistance throughout the year. However, a drawback with this approach is that observations conducted by local personnel may not be completely objective.

Star Quality Initiative

Virginia's Star Quality Initiative is a voluntary 5-star rating system that promotes program quality in both public and private preschool settings based on a statewide quality rating and improvement system (QRIS).

A further consideration is that Virginia's Star Quality Initiative includes both an observation and mentoring component. Under this initiative, programs are to be assessed biennially by a cohort of trained Star Quality Raters who will be regularly rated themselves for consistency and reliability. On-site visits and observations will be conducted by the raters to determine which level designation a facility will receive and to ensure consistency among programs. Classrooms will be observed for four to six hours, and for those facilities with more than one classroom, a subset of classrooms will be randomly selected for observation. Observations for the Star Quality Initiative will begin in late 2007 starting with a pilot of 200 classrooms and 20 raters. The number of classrooms observed and raters needed is anticipated to grow as the initiative expands.

The Star Quality Initiative will also provide a locally-selected cohort of trained mentors assigned for each provider to assist programs in improving their quality and moving up to the next level. Mentors will be local early childhood experts with first hand experience working in high quality child care settings. The purpose of the mentors will be to provide guidance to programs on improving quality, and they will have a distinct and separate role from the Star Quality raters.

Regardless of the approach taken and particularly if the VPI program expands, Virginia should consider increasing the capacity to conduct classroom observations of local VPI programs and to provide technical assistance and mentoring related to the outcomes of these observations. Moreover, the State should develop a more formal method for tracking the results of classroom observations, and should consider adopting a particular instrument to use when conducting observations.

Recommendation (3). The General Assembly may wish to increase the State's capacity to facilitate classroom observations of local Virginia Preschool Initiative programs and the provision of technical assistance and mentoring to help programs improve. The State should also develop a formal method for tracking the results of classroom observations, and it should adopt a particular instrument(s) to use for conducting observations.

Increased Support for Professional Development

Requiring regularly scheduled professional development for teachers is also an area that experts agree is critical for improving and maintaining preschool classroom quality. Virginia currently provides minimal professional development support for VPI teachers, primarily requiring that teachers receive at least 15 classroom

hours of professional development annually. While a State-managed approach to professional development may not be ideal, Virginia could do more to support the development of its VPI teachers.

In many other states, the state plays a more explicit role in supporting professional development for preschool teachers. For example, both Georgia and North Carolina hold annual training conferences for preschool program directors and/or teachers. Georgia also partners with Georgia State University to provide training for all new preschool teachers. In addition, many states appear to partner and coordinate with local regions to provide workshops and other training opportunities for preschool staff.

Web-based professional development for preschool teachers is another approach to training that is being explored and may yield useful results. For example, Michigan has developed web-based professional development for preschool teachers and program administrators, although the program is criticized for not being interactive enough.

The University of Virginia has developed *My Teaching Partner (MTP),* which is a web-based professional development tool for preschool teachers. MTP provides teachers with support from their own online consultant, a teaching expert who assists teachers by regularly (about twice monthly) observing, debriefing, and extending teachers' educational practice. MTP also provides a set of web-based resources to support high quality teaching, including research-based educational curricula designed to support the development of early language, literacy, and social relationships in preschool students. In addition, MTP includes interactive development activities and numerous video demonstrations of effective practice taken from actual preschool classrooms. As of 2006, 235 preschool teachers across the State were participating in a two-year field trial of MTP.

Many local VPI programs would benefit from increased professional development opportunities which the State could help support. Because of the differences in regional needs, teacher learning styles, and characteristics of different VPI programs, a one-size-fits-all approach would not be most effective, but rather a myriad of professional development opportunities may lead to the best results. For example, as mentioned previously, an annual State conference for VPI coordinators and/or teachers would assist DOE in informing local VPI staff of changes in the VPI program and would allow local VPI personnel to network and share best practices.

In addition, the State may want to explore partnering with universities in the Commonwealth that have developed expertise in early

childhood education to provide training for teachers on a local level. The State could also build on web-based professional development efforts to provide professional development to teachers statewide, and increased availability of mentors, as discussed above, would provide specific feedback to individual teachers. To determine the most effective combination of professional development opportunities and the related costs of these opportunities, it may be beneficial for the Secretary of Education's Office and DOE to develop a proposed professional development plan for the State to support the VPI program.

Recommendation (4). The General Assembly may wish to direct the Secretary of Education's Office and the Department of Education to develop a proposed professional development plan for the State to support the Virginia Preschool Initiative program.

Chapter 8

Costs of Providing a Quality Preschool Program

In Summary

Based on a per-pupil amount of $5,700, the Appropriation Act provided $43.7 million in FY 2007 to cover the State's share of the VPI program. To determine whether these amounts are adequate to provide a quality preschool program, estimates can be based on the cost of (1) achieving parity with K-12 education, (2) attaining unmet standards, (3) providing high-quality preschool reported by Virginia school divisions, or (4) providing high-quality preschool estimated by national experts. The most reasonable approaches appear to be basing estimates on achieving parity with K-12, which yields an estimated per-pupil amount of $7,920 and a State cost of $61.4 million, or on costs estimated by Virginia school divisions, which yields an estimated per-pupil amount of $6,790 and a State cost of $53.3 million. State costs could thereby increase by about $10 million to $18 million annually over FY 2007 funding levels, depending on the approach used.

For the 2006-07 school year, the Appropriation Act provides $43.7 million to cover the State's share of the VPI program. (An additional $2.5 million is provided for VPI pilot programs with private and non-profit providers.) This funding amount is based on Virginia's allocation of $5,700 per child for the VPI program and an average State share of approximately 63 percent of total program costs. There has been concern that the per-pupil level of funding recognized by the State is not adequate to provide a high-quality preschool program, and many local VPI programs supplement this per-pupil amount.

To explore the cost of high-quality preschool and comply with the mandate for this study, JLARC staff evaluated the additional costs of aligning components of VPI with the Quality Standards Checklist recommended by the National Institute for Early Education Research (NIEER). Staff also evaluated other approaches to estimating the cost of high-quality preschool.

COST OF ACHIEVING PARITY WITH K-12 EDUCATION

NIEER asserts that state expenditures to support preschool programs are a key indicator of each state's commitment to expanding access and ensuring educational adequacy for young children. It further contends that state K-12 spending per child may serve as a reasonable benchmark for the state share of the cost of preschool education. This is referred to as the *parity* spending level because it would equalize state spending for younger children with their K-12 peers. According to NIEER, there is little reason to expect state

support for preschool to be adequate if it falls below the state K-12 expenditure per child for a full day, or half that amount for a half day of preschool education.

In Virginia, the total FY 2006 per-pupil expenditure amount for public education reported in the *Superintendent's Annual Report for Virginia* is $9,755. However, this per-pupil amount includes a number of items that are not relevant or appropriate for a preschool program. These include summer school, adult education, and various incentive and categorical programs such as special education and vocational education programs. In order to build a comparable K-12 per-pupil funding amount for preschool, JLARC staff considered only those costs for instructional personnel and the Standards of Quality (SOQ) support costs. The most recent prevailing elementary teacher salary and instructional aide salary costs, instructional fringe benefit assumptions for the upcoming biennium, and the FY 2008 SOQ support costs result in an estimated statewide per-pupil cost of $7,920. This estimate could be considered the parity per-pupil amount for preschool in Virginia. The parity per-pupil amount results in a total VPI program cost of $97.9 million annually with a State share of $61.4 million—approximately $18 million more than was provided for the VPI State share in FY 2007.

Achieving parity with K-12 public education results in a per-pupil amount of $7,920.

The parity funding level is predicated on the assumption that VPI teachers receive salaries and benefits at the same level as K-12 teachers in public schools. However, experts caution that this could lead to equity concerns if less highly trained VPI teachers are paid at the same level as their certified counterparts in the public school system. This could be more of an issue if the VPI program is expanded and more children are served by providers located outside of public schools where the proportion of teachers without comparable credentials may increase.

An alternative for addressing this concern is to use a graduated reimbursement schedule, similar to the approach used in Georgia. Georgia adjusts preschool per-child reimbursement amounts based on the education level of the lead teacher. A base per-child reimbursement level is used when the lead teacher has either a two-year or Montessori degree. For the 2007-08 school year, the per-child reimbursement amount increases by approximately nine percent if the lead teacher has a four-year college degree. If the lead teacher is certified, the per-child reimbursement amount increases by another approximately 18 percent.

Using a graduated reimbursement schedule for VPI based on lead teacher educational attainment would yield little savings for the current VPI program because 98 percent of VPI teachers already have a bachelor's degree. However, it would address any equity

concerns that could arise within the current program. Further, it would establish a means for addressing potential inequity concerns if the VPI program is expanded.

COST OF ATTAINING CURRENTLY UNMET STANDARDS

Chapter 3 discussed five standards advocated by NIEER and the National Association for the Education of Young Children (NAEYC) that have been linked to quality but are not met by the VPI program. The unmet NIEER standards are requiring (1) comprehensive early learning standards, (2) lead teachers to have a BA, and (3) assistant teachers to have a Child Development Associate (CDA) or equivalent. Selected NAEYC standards addressed in Chapter 3 include requiring teaching staff to be evaluated at least annually and all children to receive developmental screenings. One approach to estimating the cost of a quality preschool program is determining how much it would cost for the VPI program to meet each of these standards. To some extent, the State cost for meeting these standards could be zero because the State could simply mandate that VPI programs must comply. However, some of the standards may be difficult for local programs to meet, and the State may, therefore, want to support their efforts in doing this.

The cost of attaining unmet standards is considerably less than the parity approach. Depending on the level of support the State wished to provide, the additional State costs for meeting the NIEER standards ranges from approximately $20,000 to $275,000. The additional State costs to meet select NAEYC standards is estimated to be about $95,000 in the first year and $15,000 thereafter.

Comprehensive Early Learning Standards - *NIEER Standard*

As indicated in Chapter 3, DOE staff expect VPI to meet NIEER's comprehensive early learning benchmark by the 2007-08 school year. The State has modified the *Virginia Foundation Blocks for Early Learning Standards* so that they meet NIEER's definition of comprehensive, and DOE staff expect most local VPI programs to continue to align their curriculum with the updated *Foundation Blocks*. Therefore, other than providing technical support to those divisions who may have trouble aligning their curriculum, the cost of meeting this standard should be negligible.

Lead Teachers Hold a Bachelor's Degree - *NIEER Standard*

For the 2007-08 school year, there were only three school divisions— Fairfax County, Fauquier County, and the City of Alexan-

dria—where all VPI lead teachers did not hold a bachelor's degree. The lead teachers without bachelor's degrees in these divisions constitute 15 of the 869 (1.7 percent) of the lead VPI teachers in the State. Therefore, the most practical approach to meeting this benchmark may be to grandfather in all existing teachers, but require all new teachers to hold a bachelor's degree. It is unclear whether this approach would immediately allow the State to meet the NIEER benchmark, but it would guarantee that all lead teachers would hold the degree in the relatively near future. An alternative would be to assist lead teachers in obtaining their bachelor's degree through scholarship assistance. Given the small number of teachers, and the fact that they would likely spread this effort out over several years, the cost of scholarship assistance to the State would be minimal.

One potential concern with the approaches discussed above could arise if the State expands the VPI program and includes more child care service providers that are not located in public schools. The proportion of teachers in these centers that do not hold a bachelor's degree is unknown, but it may be greater than those programs in the public schools. However, the State could stipulate that any new VPI providers must meet the standard of requiring all lead teachers to hold a bachelor's degree.

Assistant Teachers Hold a CDA – *NIEER Standard*

Requiring all VPI assistant teachers to hold a CDA would likely be a more difficult and costly benchmark to meet than requiring lead teachers to have a bachelor's degree. As mentioned previously, as of the 2007-08 school year, only 40 percent of assistant teachers held a CDA or higher. The State could grandfather in all existing VPI assistant teachers and require new teachers to hold a CDA or better, but that would still leave a large cohort of assistant teachers in the VPI program without a CDA for the foreseeable future. Alternatively, the State could provide financial assistance to help assistant teachers obtain a CDA. Given the limited income of many assistant teachers, State assistance would likely help them obtain a CDA in a more timely fashion. Several states that currently require teachers to obtain higher levels of educational attainment provide scholarship assistance for this purpose.

Many assistant teachers obtain their CDA training through a community college. The total cost of obtaining a CDA reported by John Tyler Community College (JTCC) is approximately $1,750. This includes four required courses, student fees, books, and application to the Council for Professional Recognition to receive a CDA certificate. (Additional requirements exist for obtaining a CDA but without significant specified costs attached.) Staff at JTCC indicate that most assistant teachers would probably take one course

per semester, which would result in a two-year process to obtain the CDA. (Most states imposing increased educational requirements on assistant teachers also have typically allowed multiple years for teachers to obtain specified credentials, and in some cases waivers are provided if teachers are at least showing a good faith effort to increase educational levels.)

The Virginia Department of Social Services (DSS) already funds the Virginia Child Care Provider Scholarship Program (VCCPSP) which covers the cost of tuition for CDA courses and technology fees at community colleges, which is approximately $1,000 of the total CDA cost based on the JTCC program. However, DSS staff indicate that the demand for this program already outstrips the supply of funds available—$600,000 annually. If the State were to fund the tuition and fee costs for all VPI assistant teachers currently without a CDA to obtain one, the cost would be approximately $275,000 annually for two years if all assistant teachers obtained their CDAs over a two-year period. The State could give priority to VPI assistant teachers over assistant teachers outside the program, but this would result in decreased funding for non-VPI assistant teachers.

Another less costly method for obtaining CDA training is directly from DSS rather than through a community college. Assistant teachers are able to obtain their CDA training through DSS' Helping and Nurturing Developmental Stages (HANDS) curriculum. The cost of the HANDS curriculum (not including application to the Council for Professional Recognition) is $65. If assistant teachers obtained their CDA training through the HANDS program, the cost would be significantly less—around $35,000 per year in total, of which approximately $20,000 would be the State share. The HANDS program may be a less appealing route for some assistant teachers because students in the HANDS program do not obtain college credits while students earning CDAs through community colleges receive credits that can be applied to higher credentials. In addition to obtaining CDA training through community colleges and DSS, other options exist for obtaining CDA training.

Teaching Staff Evaluated at Least Annually – *NAEYC Standard*

The cost to the State of requiring annual evaluations of teaching staff should be minimal. Evaluations could be conducted by local program directors or VPI administrators. Further, 93 percent of school divisions report that they already evaluate their VPI teaching staff every year.

Children Receive Developmental Screenings – *NAEYC Standard*

Because many state-supported preschool programs serve at-risk children, some experts and states have determined that it is prudent for all children to receive developmental screenings. Based on a commonly used instrument in Virginia and other states, the start-up cost of conducting developmental screens is approximately $1,000 for the initial screening manual and materials, and annual per-student screening costs are about $2. These estimates only include the direct cost of the screening instrument and do not include an estimate of the time of local staff to conduct the screenings. One Virginia school division indicated it would be difficult to estimate a cost amount for the staff time needed to conduct the screenings.

Seventy-seven percent of school divisions report that they already conduct a developmental screen of all VPI students even though this cost is not recognized by the State. The State could mandate that the remaining 23 percent of divisions incorporate this standard as well. The State could also subsidize the cost of developmental screenings. The State share of the initial start-up materials for the screening instrument and per-student costs for screenings is approximately $95,000. The State's share of the annual cost of developmental screenings conducted after the first year would be approximately $15,000.

COST OF PROVIDING HIGH-QUALITY PRESCHOOL REPORTED BY VIRGINIA SCHOOL DIVISIONS

Virginia school divisions report a prevailing per-pupil amount of $6,790 as needed for high-quality preschool.

Many Virginia school divisions report that the State's assumption of $5,700 per pupil for the VPI program is too low for them to provide a quality program. Of 78 school divisions providing information on the adequacy of the State's recognized per-pupil amount, 38 divisions, many of them rural, reported $5,700 as adequate and 40 divisions responded that this amount is too low. For those responding that the amount is too low, the adequate per-pupil amounts they reported ranged from $5,800 to $17,958. The prevailing amount across all divisions of the adequate per-pupil amount, including those reporting $5,700 as adequate, is $6,790. Based on FY 2007 VPI student enrollment, a $6,790 per-pupil amount would result in a total program cost of $83.9 million with a State share of $53.3 million. This is $9.6 million more than the FY 2007 State VPI amount.

One reason many of the school divisions reported that $5,700 is too low is likely due to their personnel costs. Instructional personnel costs make up nearly two-thirds of the total program costs. For FY 2007, the prevailing salary for preschool teachers and aides reported by school divisions was $42,012 and $15,299, respectively.

Prevailing Costs

Prevailing costs are calculated through the use of a linear weighted average. A linear weighted average is a measure of central tendency across divisions that weights reported unit costs near the median more heavily than costs in the extremes.

These salaries are comparable to the prevailing salaries for public elementary school teachers and aides that will be used to determine State public education funding for the upcoming biennium. The prevailing elementary teacher and aide salaries that will be used for purposes of determining SOQ funding for the 2008-10 biennium are $41,390 and $14,820, respectively. (Localities in Northern Virginia will receive an additional cost of competing adjustment for their salaries.) Given that the parity K-12 spending level of $7,920 discussed previously is based on these prevailing instructional salary costs, it is not surprising that many school divisions find $5,700, which is 28 percent less than the parity amount, to be too low.

Types of School Divisions

City divisions include urban divisions, which are located in metropolitan statistical areas (MSAs) that are less than 80 square miles in land area, and divisions in rural cities and towns, which are located outside of MSAs and are less than 80 square miles in land area.

Suburban divisions are located in MSAs with 80 or more square miles in land area.

Rural divisions are located outside of MSAs and have 80 or more square miles in land area.

Another factor related to divisions' determination of whether $5,700 is reported as adequate or nearly adequate is whether they are in city, suburban, or rural localities. As shown in Table 29, the average per-pupil amount deemed as adequate varies across city, suburban, and rural divisions with city divisions indicating the highest average per-pupil amount as necessary. The average per-pupil amount indicated as adequate in city divisions was $7,883. The average per-pupil amount indicated as adequate in suburban divisions was $7,578, and the average per-pupil amount indicated as adequate in rural divisions was $6,053. The table shows that while the majority of rural school divisions may have reported that $5,700 per pupil is adequate or nearly adequate, this is not the case in the majority of city and suburban school divisions where the cost of living is higher.

Table 29: Per-Pupil Costs of Providing High-Quality Preschool Higher in City School Divisions

Division Type[a]	Number Reporting $5,700 as Adequate	Number Reporting Per-Pupil Amount Above $5,700	Prevailing Per-Pupil Amount Reported	Percent of VPI Children Served, 2006-07
City (Urban & Rural City), n=16	4	12	$7,883	46%
Suburban, n=20	6	14	$7,578	28%
Rural, n=42	28	14	$6,053	25%
Total, n=78	38	40	$6,790	~100%

[a]Based on the 2004 JLARC report *Best Practices for Support Services of School Divisions*.

Source: JLARC staff survey of Virginia school divisions participating in the VPI program.

COST OF PROVIDING HIGH-QUALITY PRESCHOOL ESTIMATED BYNATIONAL EXPERTS

A final approach to estimating the cost of high-quality preschool is basing it on costs reported in the research literature. At the lower

end of the cost range, the National Pre-Kindergarten Center reports that pre-K costs typically range between $6,000 and $8,000 per pupil.

At the upper end of the cost range are some studies which have projected forward the costs of renowned preschool experiments, such as the Perry Preschool and the Abecedarian Project. A cost benefit analysis of the Perry Preschool program placed the cost at $12,356 per child per year in 1992 dollars. Projected forward to 2007 dollars, the program cost is about $18,248. A NIEER paper on the costs and benefits of the Abecedarian Project estimated that the annual costs of the program in a public school setting in 2002 dollars would be $13,175. Projected forward to 2007, the cost is about $15,090. This program had an average class size of 12 children and a staff to child ratio of 1 to 6.

Another per-pupil estimate has been developed by Dr. Robert Lynch at the Economic Policy Institute (EPI), based on the Chicago Child-Parent Center Program, which is known as a very high-quality preschool program. The program has a 17:2 student-teacher ratio and provides comprehensive preschool services. Since it assumes a half-day program, however, Dr. Lynch estimated the cost of a half-day high-quality preschool program, and found an average cost of $6,300 nationally. Dr. Lynch also developed state-level estimates to reflect local factors such as teacher salaries. Based on Dr. Lynch's estimates, the cost of a half-day high-quality preschool program in Virginia would be approximately $6,000 per student. This estimate is the same whether the program is targeted at the poorest 25 percent of three- and four-year-old children in the State or a universal program is provided.

This cost is for a half-day program, whereas VPI is almost exclusively full-day. Due to many of the fixed costs associated with a preschool program, it is not appropriate to simply double the half-day estimate. According to Dr. Lynch, a reasonable estimate for the cost of a full-day preschool program based on the Chicago-Child-Parent Center Program would be in the $9,000 to $10,000 range.

The per-pupil cost at the midpoint of this range, or $9,500, is at the low end of cost estimates for the model programs (compared to Perry Preschool and Abecedarian). Using a per-pupil amount of $9,500, the total cost of the VPI program would be $117 million. The State's share of this cost would be $74.6 million, which is $30.9 million more than was appropriated for VPI for the 2006-07 school year.

SUMMARY OF OPTIONS FOR PROVIDING A QUALITY PRESCHOOL PROGRAM

Table 30 summarizes the various cost options explored for providing a quality preschool program in Virginia. Regardless of the method used, it appears that the current VPI amount of $5,700 per pupil falls short of what is needed to provide a high-quality preschool program in many school divisions. The least costly method bases estimates on the cost of attaining unmet preschool quality standards, such as the NIEER benchmarks. However, this approach ignores some of the most significant costs faced by preschool divisions, namely teacher salaries. The most costly approach is based on the midpoint of estimates developed by national experts. The most reasonable approaches appear to basing estimates on achieving parity with K-12 education or using the cost estimated by Virginia school divisions. Using these two approaches, State costs could increase by approximately $10 million to $18 million annually over FY 2007 funding levels, depending on which approach is used. If the estimated per-pupil amount for VPI were to increase, both the local and State shares of costs for the program would rise.

Table 30: Summary of Options to Provide a Quality Preschool Program

Option	Estimated Per-Pupil Cost	Estimated Annual Full Cost	Estimated Annual State Cost	Estimated State Cost Above FY 2007 State Funding Amount ($43.7 million)
Cost of Achieving Parity With K-12 Education	$7,920	$97.9 million	$61.4 million	$17.7 million
Cost of Attaining Unmet Standards	n/a	$185,000-$425,000 1st yr $60,000-$300,000 2nd yr	$115,000-$370,000 1st yr $35,000-$290,000 2nd yr	$115,000-$370,000 1st yr $35,000-$290,000 2nd yr
Cost Reported by Virginia School Divisions	$6,790	$83.9 million	$53.3 million	$9.6 million
Cost Estimated by National Experts (Lower End of Range)	$9,500	$117.4 million	$74.6 million	$30.9 million

Source: JLARC staff analysis.

Chapter 9

Universal Preschool in Other States and Its Suitability for Virginia

In Summary

"Universal preschool" means that government-supported preschool programs would be available to all children, whether at risk or not. (Actual participation is voluntary or optional, depending on the wishes of the parents or guardians). It appears that children not at risk would benefit from a quality pre-K program if it were extended to them. Formal evaluations of universal pre-K programs in other states indicate that participating children from both lower- and higher-income families generally have better early literacy and math skills when they enter kindergarten because they attended these programs. Studies explicitly examining the effects of preschool on children from middle- and higher-income families indicate that attending preschool results in these children having gains in their academic test scores, although the gains may not be as large as those of more-disadvantaged children. Data from the 2006-07 school year from Clarke County, a school division in Virginia that already has a universal pre-K program, indicate that currently about one-third of eligible four-year-olds attend the program, that this third has a higher level of special instructional needs (compared to the two-thirds who did not attend the program), and that the program may have a positive impact on participants' readiness for kindergarten.

"Universal preschool" refers to the goal that preschool will be available to all four-year-old children whose parents wish them to attend, irrespective of family income. It does not imply mandatory attendance. "Pre-K" or "Pre-Kindergarten" refers to a subset of preschool programs that place more emphasis on the mastery of the concepts and skills that are seen as necessary for school readiness upon entry into kindergarten.

In contrast to a universal preschool program, the Virginia Preschool Initiative is currently targeted to at-risk children (who are not served by federal programs, such as Head Start). Although each school division defines "at risk," the term is often used to mean children from families whose incomes are low enough to qualify them for free school lunches. Other factors may also be taken into account, such as coming from a single-parent family or low parental education level.

UNIVERSAL PRE-K PROGRAMS IN OTHER STATES

Georgia, Oklahoma, New York, the District of Columbia, Florida, West Virginia, New Jersey, Illinois, and Los Angeles County have adopted universal pre-K programs. These programs are at various stages of implementation, often depending on how many school

districts choose to participate. In Georgia (with the oldest universal pre-K program that was first implemented in 1995) and Oklahoma (where universal pre-K was established in 1998), the overwhelming majority of school districts have chosen to participate, and a majority of parents of four-year-olds have chosen to enroll their children. In New York (with a program established by the legislature in 1997), budget difficulties have limited participation, so that universality has not been realized. In the District of Columbia, every elementary school has a pre-K program, but there are waiting lists at some schools. A Florida voter referendum approved universal pre-K in 2002, and West Virginia has recently begun working toward a universal pre-K program that is to be fully phased in by 2010. New Jersey's program came out of a series of court decisions in 1997 through 2003 (Abbot v. Burke) that ordered the state to provide high-quality preschool programs for three-year-olds and four-year-olds in the state's 31 highest poverty districts. Los Angeles County in 2002 committed itself to such a program for both three-year-olds and four-year-olds, as did Illinois in 2006.

Formal Evaluations of State Universal Pre-K Programs

The most scrutinized universal pre-K programs have been those of Georgia and Oklahoma, probably because their programs are older and have been more fully implemented. West Virginia's program was also evaluated by late 2005, although at that time the program was universal in most counties but limited to at-risk students in a smaller number of counties.

Georgia. In a Georgia State University study that directly addressed the net effects of Georgia's program, Henry et al. (2003), focused on changes in the initial gaps between children in Georgia's pre-K program and those who attended private preschool, as well as the initial gaps between children in the pre-K program and national norms. The researchers drew samples from three groups of children attending preschool in 2001: (1) those in Georgia's pre-K program (n=353); (2) those attending Head Start as four-year-olds (n=134); and (3) children attending private preschools or child care who were eligible for the Georgia pre-K program (n=143). The researchers explain why they did not include a group of children who did not attend formal preschool:

> Since Georgia's Pre-K Program is available to all four year-olds in the state whose parents choose to enroll them and a majority of the eligible children attend, it is nearly impossible to find four year-old children in Georgia who are similar in most ways to children in Pre-K but who have not attended early childhood education programs. Therefore, this study compares four year-olds attending Georgia's Pre-K

> Program with children who attended other early childhood education programs.

Study measures included direct assessments (that is, tests of language development and cognitive skills) at the beginning of preschool, the end of preschool, and the beginning of kindergarten. Study measures also included observation of classroom activities, surveys of teachers, and surveys of parents' attitudes and involvement. They reported:

> Georgia's Pre-K Program provides effective early education experiences that reduced the gaps between where children began preschool as four year-olds and where they began kindergarten. Georgia Pre-K provides high quality services on a consistent basis, which reduces differences in skills between the children in Georgia's Pre-K Program and children in private preschool.

The authors regarded the reduction in the initial gaps between children in Georgia's pre-K program and children in private preschool, as well as between children in the pre-K program and national norms, as indicators of success.

Oklahoma. The most-frequently discussed evaluations of Oklahoma's universal pre-K program are those of Gormley and his colleagues at Georgetown University. Two cohorts of children were tested. One cohort of 3,560 children (1,284 entering pre-K and 2,276 entering kindergarten) was tested around August 2001, with a locally-developed measure—the Early Childhood Skills Inventory (ECSI)—which tested cognitive skills, motor skills, language skills, and a social/emotional dimension. However, because of problems with the ECSI, another cohort of 4,716 children (1,567 entering pre-K and 3,149 entering kindergarten) was tested in the fall of 2003 with a different, nationally normed measure that has been widely used in previous studies of early education (the Letter-Word Identification subtest, the Spelling subtest, and the Applied Problems subtest of the Woodcock-Johnson Achievement Test).

Gormley and colleagues found that in both cohorts, having attended the pre-K program resulted in strong positive effects on children's test scores. In the first cohort, Gormley and Gayer (2005) found that Hispanic children benefited most from the program and black children also showed sharp gains, while white children as a whole showed no statistically significant effects. Similarly, disadvantaged children (as measured by free or reduced-price lunch eligibility) showed substantial gains in cognitive, language, and motor skills, while children from the higher income bracket showed no effects. However, the researchers suspected that the testing instrument may have had a "ceiling effect": it did

not capture improvements by higher-performing students (who tended to fall more frequently into the white and higher-income categories).

Regression-Discontinuity Design Used to Evaluate Oklahoma's Universal Pre-K Program

Gormley and colleagues (Gormley and Gayer, 2005; Gormley et al., 2005) used a regression-discontinuity design to analyze test scores of two groups of children: (1) slightly younger children who were about to enter the pre-K program, and (2) slightly older children who had completed the pre-K program and were about to enter kindergarten. With the regression-discontinuity design, researchers could estimate the effects of attending the pre-K program, while controlling for selection bias, a problem that has compromised many previous evaluations of this nature. Because both four-year-olds and five-year-olds in Oklahoma were administered the same test at the same time, it is possible to compare children whose parents are alike in that they selected the pre-K program for their child. It is widely recognized that parents who choose pre-K for their child may differ from parents who do not choose pre-K in terms of their education, work profile, parenting practices, or motivation. The regression-discontinuity approach also allowed the researchers to control for background variables that can affect test scores: whether the child is on free or reduced-price lunch (an indicator of family income); the child's mother's education level; the race-ethnicity of the child (white, black, Hispanic, Native American, or Asian); the gender of the child; and the child's age.

The same analysis of the second cohort (Gormley et al., 2005), using a different testing instrument with no ceiling effects showed Hispanic, black, white and Native American children all benefiting from the pre-K program, as did children in diverse income brackets (as measured by school lunch eligibility status). Specifically, the pre-K program was found to have statistically significant effects on children's performance on cognitive tests of prereading and reading skills, prewriting and spelling skills, and math reasoning and problem-solving abilities. Gormley et al. attributed the difference in findings between the first and second cohorts to the difference in tests used:

> [T]he standardized and well-validated Woodcock-Johnson Achievement test may explain the difference, particularly in its capacity to capture program impacts for more advantaged children (full-price lunch children).

A team led by W. Steven Barnett at the National Institute for Early Education Research (NIEER) at Rutgers University later replicated the results of Gormley and colleagues. Using a regression-discontinuity design, Lamy, Barnett and Jung (2005a) tested children in pre-K and kindergarten in Oklahoma (as well as four other states) in the fall of 2004, and found "significant and meaningful effects [of the pre-K program] on children's language, literacy and math skills." They concluded "this study's results are consistent with findings in other rigorous studies of state preschool programs," citing Gormley et al., among others.

West Virginia. West Virginia's Early Education Program was evaluated by Lamy, Barnett, and Jung (2005b). Using a regression-discontinuity design for the study, the study sample included 341 four-year-olds entering the pre-K program and 379 five-year-olds entering kindergarten in the fall of 2004. At the time data were collected, West Virginia's universal pre-K program was not yet fully phased in (it is expected to be entirely universal by 2010). At that time, in most counties eligibility for the pre-K program was universal, although in some counties eligibility was based on at-risk status. The researchers found that West Virginia's pre-K program had statistically significant and meaningful impacts on children's early literacy and mathematical development. Specifically, they found:

- The Early Education Program resulted in an increase in children's vocabulary scores, as measured by the Peabody Picture Test. This measure is commonly used as a quick test

of IQ and can be used as a rough assessment of general cognitive abilities. The improvement associated with the pre-K program translates into an additional three months of progress.

- Children who attended the pre-K program scored higher on a test of early mathematical skills, as measured by the Woodcock-Johnson Applied Problems subtest. Skills tested include basic number concepts, simple addition and subtraction, telling time and counting money.
- The program had large effects on children's understanding of print concepts (measured by the Print Awareness subtest of the Preschool Comprehensive Test of Phonological and Print Processing). Children who attended the program knew more letters, more letter-sound associations, and were more familiar with words and book concepts.

STUDIES OF THE EFFECTS OF PRESCHOOL ON MIDDLE- AND UPPER-INCOME CHILDREN

In general, there are far fewer studies of the effects of preschool focusing on middle- and upper-income children (or "low-risk" children), compared with the studies focusing on disadvantaged children. There appears to be just one experimental study focusing on low-risk children. Other studies rely on quasi-experimental designs and generally use approaches that are more likely to suffer from selection bias. Further, many of these studies rely on regression or correlational analyses, which can show statistical association between factors, but cannot show conclusively that one factor has a causal effect on another, the way carefully controlled experiments can. In addition, most studies focus more on short-term outcomes than on long-term outcomes. The studies generally found that children attending preschool have higher academic test scores, but in some cases may exhibit somewhat more problematic or inappropriate social behaviors.

Effects Reported in the Experimental Evaluation

Larsen and Robinson (1989) examined the effects of preschool attendance upon school achievement scores and out-of-school activities for 196 second and third grade children, 125 of whom attended the Brigham Young University Preschool and 71 of whom did not attend any preschool. The children were characterized as being from "low-risk educationally advantaged families," and were randomly assigned to the preschool program or else to a control group.

Analysis was conducted separately for boys and girls across 11 achievement test score components. Boys who had attended preschool scored significantly higher on the reading vocabulary, total

reading, spelling, total language, and total battery components than did those who had not attended preschool. There were no significant differences for boys on any of the math test components, nor on reading comprehension. A preschool effect upon achievement scores for females from these age groups was not found. The authors concluded that "the main implication of these findings is that the preschool experience reduces sex differences in language achievement scores for educationally advantaged children."

Effects Reported in Universal Pre-K Program Evaluations

Evaluations of universal preschool programs in Georgia and Oklahoma have attempted to take into account how the observed results for children from middle- and upper-income families may differ from those of disadvantaged children. However, the research designs of these studies have their drawbacks, which limit the conclusions which can be drawn.

Georgia. Henry et al. (2003) examined the differences in children's outcomes from preschool entry through kindergarten entry for children in three types of early childhood programs: Georgia's pre-K program, Head Start, and other private preschools. Because children were not randomly assigned to the three program types, differences in outcomes may be due to selection bias absent efforts to control for underlying differences in the three groups of children. Therefore, the researchers analyzed the outcomes by attempting to statistically control for the effects of the following family risk factors and individual characteristics:

- gender,
- whether the child was African-American or belonged to another minority group,
- mother's education,
- whether the child lived with both parents continuously since birth,
- parental involvement with preschool,
- family income level (whether the family received a means tested benefit), and
- child's age at preschool entry.

Outcome measures include direct assessments (that is, test scores) and teacher ratings of students, all at the kindergarten year. Therefore, the outcomes examined in this study are short-term.

When comparing the outcomes of Georgia pre-K program participants with those of children attending Head Start or private pre-

school programs, and controlling for individual and family characteristics, the type of preschool program attended did not make a significant difference. Some of the individual and family characteristics did make a difference in outcomes. For example, the child's gender, whether the child belonged to a minority group, the child's age at preschool entry, and the mother's education level all appeared to be significantly associated with outcomes. However, family income level was not, when all these other variables were already taken into account. This finding implies that the results observed among low-income children would be the same among children with middle- and upper-income parents, holding everything else equal.

However, lack of significant effects in family income level could be due to other factors as well. For example, operationalizing family income level as whether the family received a means-tested benefit may not be the most appropriate way to represent this variable, which may account for the variable's lack of significance. Or other "control" variables (such as mother's education level) may be correlated with family income such that when both are included in the same regression equation, the other control variable captures the explanatory power of family income. Thus, due to the ambiguities resulting from the research design of this study, these findings must be regarded as suggestive at best.

Oklahoma. The evaluations of Oklahoma's universal pre-K program use a potentially stronger research design that provides evidence of the short-term benefits of preschool participation (namely, a regression-discontinuity design). However, as previously mentioned, suspected problems with the outcomes measure used in the first study (Gormley and Gayer, 2005) resulted in another data set being gathered from a second cohort two years later using a different outcomes measure (Gormley et al., 2005). As a result, there are two sets of findings regarding the program's effects on children from middle- and upper-income families.

The first study (Gormley and Gayer, 2005) used a test instrument that was developed locally in Oklahoma. Results from the locally-developed instrument showed gains that were larger for more-disadvantaged children (that is, minorities and those qualifying for a free or reduced-price lunch). However, the authors suspected that the locally-developed test instrument had a "ceiling effect" among higher-performing students: that higher-performing students were achieving the highest possible scores on the test, such that it was not accurately measuring their higher performance. Further, if the higher-performing students were more frequently from middle- and upper-income families, this problem with the test instrument would result in the findings being systematically biased.

Consequently, Gormley and colleagues collected a new set of data from a second cohort of children two years later, this time using the Woodcock-Johnson achievement test (which would have no ceiling effects). This time (Gormley et al., 2005) results from the Woodcock-Johnson test indicated that gains occurred for students in each racial/ethnic group and regardless of free-lunch status. The methodology, however, does not allow comparison of the magnitude of the effects across groups because selection biases (that is, differences in who selects into the pre-K program) may vary across groups.

Effects Reported in Other Nonexperimental Evaluations

Other studies reporting the effects of preschool on middle- and upper-income children include (1) Loeb et al. (2005), (2) Magnuson et al. (2004), and (3) Belsky et al. (2007).

Loeb, Bridges, Bassok, Fuller and Rumberger (2005). Loeb et al. (2005) used data gathered by the National Center for Educational Statistics from 14,162 kindergarteners from all income groups, as well as their parents and teachers. (In particular, data for this study come from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99.) Survey administrators assessed children to determine their early language and pre-reading skills and their understanding of numbers and mathematical concepts. Teachers assessed various forms of children's social and emotional development, and parents answered an extensive set of questions regarding the type of preschool or child care they used and the intensity of attendance.

After controlling for different features of the child's home, family, and surrounding community, Loeb et al. found that children from middle- and upper-income families experienced modest gains in pre-reading and math skills stemming from preschool attendance, compared with counterparts who remained at home. However, they reported that children from extremely poor families displayed the strongest gains in pre-reading and math skills.

Loeb et al. also examined the effect of preschool center attendance on children's social development. They used a composite measure of social-behavioral growth which includes indicators rooted in three domains of development: children's externalizing behaviors (such as aggression, bullying, acting up), interpersonal skills (such as sharing and cooperation), and self control in engaging classroom tasks. They reported that attendance in preschool centers for longer periods of time (such as over 15 hours per week) is associated with lower social-behavioral growth across all three domains. This effect was particularly strong for children from higher-income families.

Loeb et al. concluded that children from poor families may gain cognitively from more intensive preschool, but do not show strongly negative behavioral consequences. In contrast, for children from middle- or higher-income families, the cognitive benefits appear to taper off after 30 hours per week of exposure to preschool, and the negative social-developmental effects intensify.

Magnuson, Meyers, Ruhm and Waldfogel (2004). Magnuson et al. also examined data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99. Their sample consisted of 12,800 children, from lower-, middle- and upper-income groups. They conducted a similar analysis of reading and math skills at kindergarten entry and later in kindergarten, with a very extensive set of controls for demographic characteristics, home environment and family background, and neighborhood and school characteristics.

Magnuson et al. also found that measures of school readiness and performance in kindergarten were significantly higher for children who attended a center-based preschool program in the year prior to kindergarten entry. Magnuson et al. also report stronger effects for more-disadvantaged children (whether defined by poverty status, low maternal education, single parent headship, or mothers who do not speak English) by comparing results for the entire sample with various high-risk subsamples. However, Magnuson et al. did not report equivalent results for a subsample of lower-risk children, which limits what can be directly observed regarding middle- and upper-income children.

Belsky, Vandell, Burchinal, Clarke-Stewart, McCartney and Owen (2007). Belsky et al. (2007) provides one of the few studies addressing the long-term effects of center-based child care on children in general (rather than focusing exclusively on high-risk children). It should be noted, however, that this study addresses the effects of *early child care*, which includes preschool or pre-kindergarten programs, but may also include other programs that do not emphasize early childhood education as much. This study was part of a broader effort, the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development (SECCYD). Study participants were initially recruited through hospital visits to mothers shortly after the birth of a child in 1991 in ten locations in the United States. During the selected 24-hour intervals, all 8,986 women giving birth were screened for eligibility. From that group, 1,364 families from different income groups and varying educational and ethnic backgrounds were ultimately selected to be in the study sample.

Data analysis focused on testing the long-term associations between child-care experiences during the first 4-1/2 years and children's academic and social development from that age through the

spring of sixth grade. Although parenting was a stronger and more consistent predictor of children's development than early child-care experiences, Belsky et al. (2007) reported two main findings regarding early child care. First, children who experienced high quality early child care displayed better vocabulary scores in fifth grade than did children who experienced poorer quality care. Second, children with more experience in center settings continued to show "somewhat more problem behaviors through sixth grade." However, the researchers state that the behaviors were not clinical or pathological levels of problem behavior. Belsky et al. checked for whether these effects were stronger among lower income groups or among boys, but "no evidence emerged to indicate that gender or income moderated the reported results." Therefore, these associations appear to occur among middle- and upper-income children as well as those who are more disadvantaged.

ARGUMENTS FOR AND AGAINST A STATEWIDE UNIVERSAL PRE-K PROGRAM

Proponents and opponents of universal pre-K have argued over (1) the types of benefits, (2) whether the benefits outweigh the costs, and (3) potential problems associated with such a program.

Proponents of a statewide universal pre-K program have pointed to the short-term, intermediate, and long-term benefits such a program could be expected to have. As an example, Exhibit 5 summarizes how the Governor's Start Strong Council characterized the benefits of a statewide universal pre-K program in its December 2006 report.

Further, proponents have cited economic analyses stating that the estimated benefits of pre-K benefits outweigh the costs. However, the estimated benefit-cost ratios vary widely across the studies, as the specific features of the pre-K programs on which the studies are based are different. For example, some pre-K programs are targeted to at-risk children, while others are universal. Further, some estimates are based on actual pre-K programs that were implemented, while others are based on hypothetical programs that were projections.

As shown in Exhibit 6, the benefit-cost analyses have claimed that for every dollar spent on pre-K, estimated benefits could range from a $2.50 to a $17.11 return to participants and society.

Exhibit 5: Benefits of Universal Pre-K Claimed by Proponents

- Short-term benefits to the child:
  - Enhanced educational achievement
  - Improved health benefits
  - Increased well-being with less abuse

- Short-term benefits to the family: free child care time while working

- Short-term benefits to society/economy: greater tax revenues from working parents

- Mid-term benefits to school system:
  - Reduced grade retention
  - Reduced placement in special education
  - Greater productivity

- Mid-term benefits to society:
  - Reduced abuse/neglect
  - Lower reliance on public healthcare

- Long-term benefits to the child:
  - Higher likelihood of high school graduation and enrollment in higher education
  - Greater employment opportunities and higher pay
  - Lower teen pregnancy
  - Reduced delinquency

- Long-term benefits to society/economy
  - Lower welfare dependence
  - Increased income tax revenues
  - Reduced crime

Source: Start Strong Council. (2006). *Initial Report.* Richmond, VA: Office of Virginia Governor Timothy Kaine.

In addition to claiming the economic benefits of universal pre-K, proponents have also stated that a universal pre-K program would have advantages over one that is targeted to at-risk children. One argument is that less-disadvantaged children need quality pre-school programs as well as more-disadvantaged children, and that middle class children may currently have difficulty accessing them. A universal pre-K program would solve this problem by providing access for all to a quality preschool program. Another point that proponents have made is that universal pre-K programs would allow mixing of children from both disadvantaged and advantaged backgrounds, which could be a good influence on them.

Exhibit 6: Summary of Economic Studies of Pre-K Programs With Claimed Benefit-Cost Ratios

Name of Project/Author of Study	Type of Program	Actual or Projected Program?	Claimed Benefit-Cost Ratio
High/Scope Perry Preschool Belfield et al., 2006	• Targeted pre-K • Three- and four-year-olds • Part day • School year	Actual	17.1:1
Chicago Child-Parent Center Reynolds et al., 2002	• Targeted pre-K • Three- and four-year-olds • Part day • School year	Actual	7.14:1 to 10.15:1
Abecedarian Barnett & Masse, 2007	• Targeted comprehensive early care and education • Birth to five years • Full day • Full year	Actual	2.5:1
Lynch, 2007	• Targeted pre-K • Three- and four-year-olds • Part day • School year	Projected	12:1
	• Pre-K for All • Three- and four-year-olds • Part day • School year	Projected	6:1
Karoly & Bigelow, 2005	• Pre-K for All • Four-year-olds • Part day • School year	Projected	3.15:1

Source: Belfield, C. R., Nores, W., Barnett, W. S. & Schweinhart, L. (2006); Reynolds, A. J., Temple, J. A., Robertson, D. L. & Mann, E. A. (2002); Barnett, W. S. & Masse, L. N. (2007); Lynch, R. (2007); Karoly, L. A. and Bigelow, J. H. (2005). Full citations are in Appendix E.

Opponents of universal pre-K have countered these assertions regarding the benefits of a universal pre-K program. Their arguments regarding the credibility of the benefit estimates (such as those in the studies shown in Exhibit 6) are summarized in Exhibit 7.

Exhibit 7: Opponents' Arguments Against Benefit-Cost Estimates of Universal Pre-K

- The benefits claimed by the proponents of universal pre-K may accrue to more disadvantaged children, but are less likely to occur among children from middle- or upper-income families. Middle- and upper-income children have not shown the same magnitude of positive response to preschool programs as have disadvantaged children. In fact, most of what is known about the effects of preschool comes from programs that have been targeted to disadvantaged children.

- Much of what is known about preschool comes from small-scale, model programs, which are different (in terms of what is provided) from large-scale programs, which a statewide universal pre-K program would be. Further, a large-scale pre-K program (such as a universal pre-K program) would provide too little to disadvantaged children, but too much to middle- and upper-income children, compared to what they need.

- There are studies that indicate attending preschool may have detrimental effects. Some studies [such as Belsky et al. (2007) and Loeb et al. (2005)] have shown an association between having attended preschool (at least for a longer period of each day) and behavior problems later in elementary school.

- Estimates of the projected benefits of a universal preschool program (such as $2.50 for every dollar spent on pre-K) are highly subject to error. One source of error is the "fade-out effect," in which the achievement impact of preschool appears to diminish later in elementary school (which could be due, at least in part, to underperformance in the public K-12 system).

Source: Izumi, L. T. & Xiaochin, C. Y. (2006). *No Magic Bullet: Top Ten Myths about the Benefits of Government-Run Universal Preschool*. San Francisco: Pacific Research Institute. Olsen, D. with Snell, L. (2006). *Assessing Proposals for Preschool and Kindergarten: Essential Information for Parents, Taxpayers and Policymakers.* Los Angeles: Reason Foundation. Cardiff, C. F. & Strongham, E. (2006). *Is Universal Preschool Beneficial? An Assessment of RAND Corporation's Analysis and Proposals for California.* Los Angeles: Reason Foundation.

Opponents have pointed to other potential problems that could come with a universal pre-K program. One set of potential problems would be on the school-division level. School divisions which currently have difficulties providing the facilities to accommodate all of their current students would have even more difficulty finding the space to accommodate additional children in a universal pre-K program. Similarly, the additional competition for teachers in a new universal preschool program would make the shortage of teachers (which some school divisions currently face) worse, espe-

cially if the preschool teachers are paid the same as elementary school teachers. Some school division officials told JLARC staff, however, that if the State were to provide additional funding for expanding their pre-K program, they would find a way to cope with these potential problems.

Other potential problems may occur from a fiscal perspective on the State level. The costs of a public preschool program could be much higher than initially estimated, especially if the actual per-pupil cost or the actual number of participants were higher than initially expected. For example, the universal preschool program in Quebec was initially estimated in 1997 to cost $230 million over the first five years. It now costs $1.7 billion every year. Further, the decision to put a universal pre-K program in place is probably irreversible. That is, once a universal pre-K preschool program is put in place one year, it could be difficult to change course and not to continue funding the full cost in future years. This substantial commitment of the State (and localities) could be difficult in future years, especially in times when there is an economic downturn and revenue shortfalls are occurring.

Opponents have expressed concern over the effects of universal pre-K on private providers. In particular, they have raised the issue that a government-run universal preschool program may run private providers out of business. However, it is possible for a government-run pre-K program, as it is implemented in a given locality, to utilize existing settings (such as through subcontracting with private child care centers or faith-based settings), so that these private providers would be enlisted into the program rather than run out of business. The Governor's Start Strong Council has proposed a pilot project to increase access to 1,000 additional four-year-olds not currently served by public funds through these kinds of existing settings. The General Assembly approved funding for this pilot project during the 2007 Session.

Opponents have also questioned whether alternatives to a year of preschool for all four-year-olds could be less expensive, yet just as effective. For example, in a couple of California school districts, a five-week preschool program is held in the summer before children enter kindergarten. This program has been shown to have positive effects, but at less than ten percent of the costs of a year-round program. Opponents have also asserted that low-income minority children do not necessarily need to attend preschool to succeed. For example, proven curricula and methods of instruction used in some public schools in California have raised student achievement, especially among low-income students who never attended preschool.

CLARKE COUNTY: A CASE STUDY OF A UNIVERSAL PRE-K PROGRAM IN VIRGINIA

Several local school divisions in Virginia are already moving in the direction of making their pre-K programs universal, in the sense that all parents who want preschool access for their children can get it. Clarke County is one of those divisions. The Clarke County pre-K program has evolved over time, and analysis of data regarding this program reveals some noteworthy results that have implications for a statewide universal pre-K program.

Clarke County's Change to "Reverse-Mainstreaming" Model Reflected in Pre-K Program

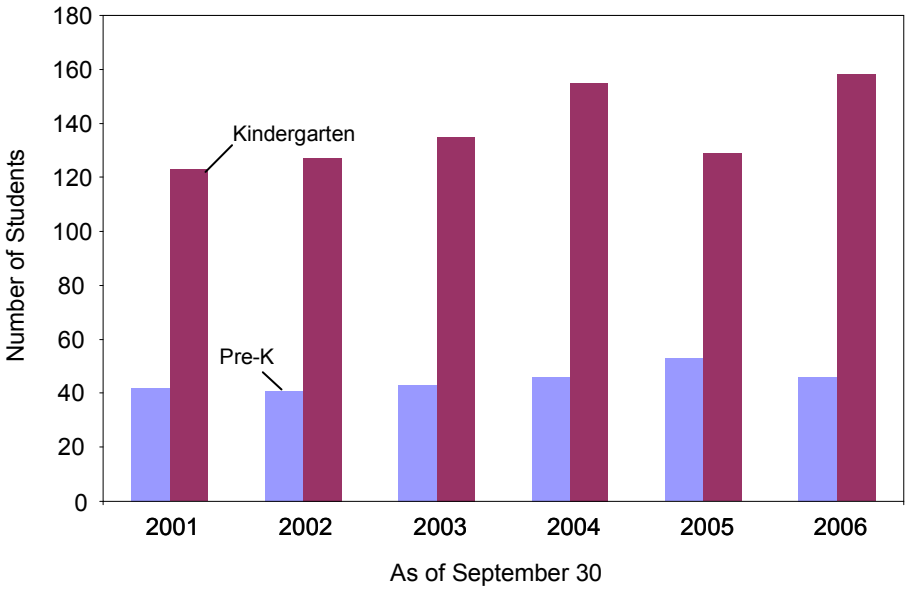
Clarke County school officials emphasized that the pre-K program has changed over the years. They told JLARC staff that the division's pre-K program is about 15 years old, and was originally restricted to at-risk children. At that time, resources were allocated separately to different populations: at-risk teachers were allocated to teach the at-risk children, special needs teachers were allocated to teach students with special needs, and regular classroom teachers would teach the regular, mainstream low-risk students separately. Since then, the division has moved to a "reverse-mainstreaming" model, in which resources are combined and shared across different student populations. Moving toward a universal pre-K program, in which "regular" low-risk students are enrolled in the same pre-K classes as at-risk and special needs students, reflects this change. The Clarke County school division funds universal access by combining Title I, Head Start, Virginia Preschool Initiative, Comprehensive Services Act, local funds and parent-paid tuition. Clarke County school officials pointed to examples of at-risk and special needs students who now, after having been in a reverse-mainstreaming environment, cannot be readily distinguished from low-risk students.

In addition, Clarke County school officials said there are other benefits to a universal pre-K program. One of these claimed benefits is that recently, the waiting list for enrollment in the pre-K program has been reduced to zero, as the program has been expanded to include all children whose parents would want them to be in the division's pre-K program. In contrast, in previous years when the program was more restricted to at-risk children, there were longer waiting lists. Another benefit of making the pre-K program universal is that parents who have relatively higher incomes are charged tuition, which is a substantial revenue source that helps pay for the entire pre-K program.

Considerably Less than 100 Percent of Kindergarteners Participated in Division's Pre-K Program

From the 2002-03 school year through the 2006-07 school year, it appears that up to about one-third of all kindergarteners had participated in the division's pre-K program in the previous year, while about two-thirds did not. As shown in Figure 12, the fall membership counts as of 2001 through 2006 for kindergarteners in Clarke County ranged from about 120 to 160. In contrast, the number of four-year-olds in the division's pre-K program in those years ranged from 41 to 53. Given that the kindergarteners counted in one year would include most of the four-year-olds in the division's pre-K program from the previous year, the data indicate that about two-thirds of kindergarteners did not participate in the division's pre-K program, even as it moved in the direction of being a more universal program in recent years.

Figure 12: Most Clarke County Kindergarteners Did Not Attend Pre-K Program



Source: Virginia Department of Education.

It should be noted that there could be some discrepancy in comparing one year's number with another, because some kindergarteners could be moving into Clarke County just before the fall count, while some participants in the pre-K program may move out before they could be included in the fall count of their kindergarten year. Further, it would not be surprising that the participation rate is less than 100 percent in earlier years when the pre-K program was more restricted to at-risk students. Nevertheless, up to the 2006-07 school year at least (and the pattern holds for the previous four

years as well), about two-thirds of the kindergarteners in Clarke County apparently did not participate in the division's pre-K program.

When asked what arrangements kindergarteners who did not attend the division's pre-K program may have had when they were four years old, Clarke County school officials indicated that some of the children may have stayed at home, while others may have attended church-affiliated preschools or private child care centers. They mentioned that some children may not have attended the division pre-K program because it did not fit their parents' work schedules. Further, they indicated that private and church-affiliated preschools were still viable alternatives for parents to choose for their four-year-olds, even with Clarke County Public Schools offering a universal pre-K program.

Data from kindergarteners in the fall of 2006 (which was used in Chapter 5) from Clarke County in particular indicate that there was a higher percentage of special needs students among kindergarteners who had participated in the division's pre-K program, compared to kindergarteners who did not. JLARC staff had data from 41 kindergarteners (as of fall 2006) who had participated in the division's pre-K program in the 2005-06 school year, and 117 of their classmates who did not. About 22 percent of the kindergarteners who had attended the division's pre-K program required special services, in contrast to six percent of those not attending the program. This finding suggests that preschool teachers in the division's pre-K program had a more challenging population of students (at least in 2005-06), compared to students not attending the division's pre-K program.

Effects of Clarke County's Pre-K Program on School Readiness and School Performance

Data that were used for the statewide analysis in Chapter 5 were also examined with a focus on Clarke County in particular for this chapter. The data include (1) PALS-PreK test scores from fall 2005 and spring 2006, to assess the literacy growth of Clarke County preschoolers in the division's pre-K program; (2) PALS-K test scores from fall 2006, to assess the preparedness of the program's graduates for the start of kindergarten; and (3) Standards of Learning (SOL) third-grade and fifth-grade test scores from spring 2006, to observe how Clarke County students performed in school compared to their counterparts statewide, and to speculate on the impact the division's pre-K program may have had. Additional data provided by Clarke County school officials were also examined.

Estimation of Predicted PALS-PreK Scores

Using the same regression models that were developed statewide in Chapter 5, JLARC staff calculated the predicted PALS-PreK scores while controlling for the effects of key independent variables that affect test scores: student's age, gender, race/ethnicity, poverty (represented by the proxy variable percentage of students in the school division participating in the free lunch program), local adult educational attainment (represented by the proxy variable percentage of adults in Clarke County with at least a bachelor's degree), and whether or not the student needed special instructional services.

Literacy Growth of Clarke County Preschoolers in Division Pre-K Program. Of the 53 children enrolled in the division's pre-K program as of September 30, 2005, JLARC staff had PALS-PreK data from 45 children who completed both the fall 2005 and the spring 2006 administration of the test. The predicted PALS-PreK scores, using the regression models developed for Chapter 5, were espected to increase by 6.9 points from fall 2005 to spring 2006 due to the students being nine months older. Actual PALS-PreK scores of children in the Clarke County pre-K program in fall 2005 averaged 35.6, and in spring 2006 they averaged 51.4, representing an average increase of 15.8 points. Consequently, the actual increase exceeded the expectation by 8.9 points.

Although the growth in Clarke County pre-K students' scores exceeded the expectation (based on age), the growth in VPI students' scores in all other school divisions was higher (see Table 3 in Chapter 5). This difference could be associated with the fact that in the other school divisions, their pre-K programs are more targeted to at-risk students, compared to Clarke County's universal pre-K program. Some studies have indicated that more-disadvantaged students may benefit more from pre-K programs than less-disadvantaged students. Further, the Clarke County students' fall scores are higher compared to the vast majority of other school divisions, so there may have been relatively less room for improvement nine months later.

Literacy Preparedness of Clarke County Pre-K Graduates for Start of Kindergarten. Of the 158 kindergarteners in Clarke County as of September 30, 2006, JLARC staff had complete data (including the PALS-K assessment in fall 2006) on 34 children who had been in the division's pre-K program the previous year, and 108 children who were not. Using the regression models developed for Chapter 5, JLARC staff predicted the PALS-K scores for both groups of children and then compared them with actual scores (Table 31).

The results in the table can initially appear to be confusing. Among graduates of the division's pre-K program, on average the actual PALS-K scores were higher than the predicted PALS-K scores. (The predicted PALS-K scores are based on what would be expected from statewide trends associating the student's test scores with their age, gender, race/ethnicity, a local adult educational attainment indicator, a local poverty indicator, and the need for special instructional services.) This finding by itself would imply that something else may have given students a boost in preparing them for the challenges of learning to read and write in kindergarten, beyond the factors being controlled for in their predicted PALS-K score, and that boost may have been participation in the division pre-K program.

Estimation of Predicted PALS-K Scores

A statewide regression model developed for Chapter 5 was used to predict PALS-K scores of Clarke County kindergarteners. The independent variables were the student's age, gender, race/ethnicity, percentage of adults in the community holding at least a bachelor's degree (an indicator of local adult educational attainment), percentage of students at the school on the free or reduced-price lunch program (a poverty indicator), and an indicator of whether the student had special instructional needs.

Table 31: Predicted and Actual PALS-K Scores of Clarke County Kindergarteners (Fall 2006)

	n	Average Predicted PALS-K Score	Average Actual PALS-K Score	Difference
Division Pre-K Graduates	34	54.4	59.6	5.2
Other Kindergarteners	108	59.2	66.4	7.2

Source: Analysis of data provided by University of Virginia.

But comparing pre-K graduates with the 108 other kindergarteners makes the story more complicated. Among the other kindergarteners, their actual PALS-K scores also are greater than their predicted PALS-K scores. So something may have boosted their scores as well, but it was not the division's pre-K program. For some, it may have been enrollment in a church-affiliated or other private preschool program. But the preschool experience of the other kindergarteners is not known, so the source of "the boost" is unclear.

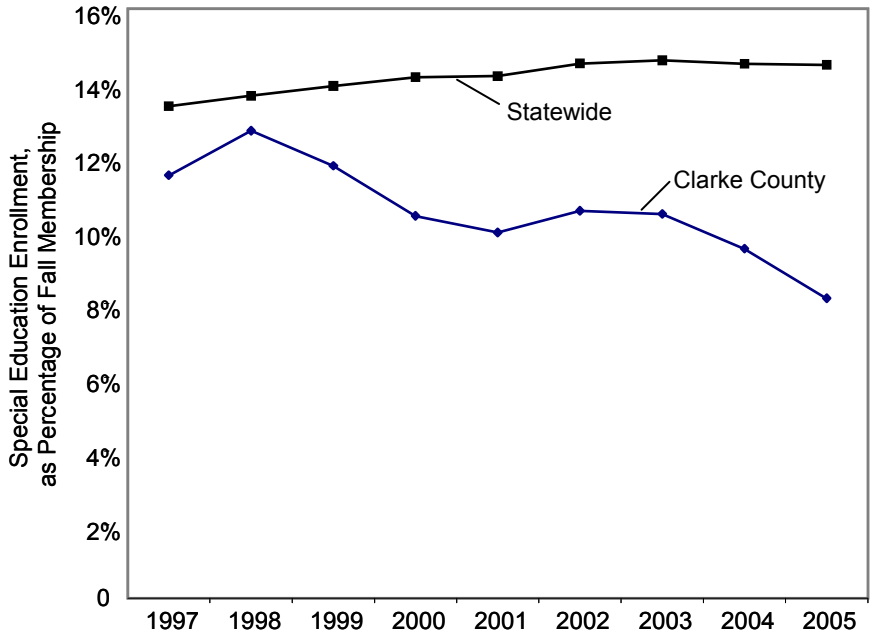
Further, the fact that the predicted PALS-K scores of the other kindergarteners are also substantially higher than those of the division pre-K program graduates implies that there is something systematically different about the two groups, so that the two groups of students are not comparable. The division pre-K program graduate group is known to have a higher percentage of special needs students, a slightly higher percentage of Hispanic students (see Chapter 5 for more discussion the effects of this factor on PALS-K scores), and a higher percentage of boys, compared to the other kindergartener group. These factors predict lower PALS-K scores in the statewide regression equation. They imply that the division pre-K program has a more challenging population to educate, compared to the other kindergarteners in Clarke County.

Other Indicators of School Performance. It is clear that Clarke County students perform in school better than their counterparts statewide, on average. But it is not so clear whether this good performance can be attributed more to the one-third of the students who had participated in the division pre-K program, or to the two-thirds who did not. Perhaps the best case can be made for attributing to its pre-K program its low rate of placement of students in special education. However, establishing a link between Clarke County's SOL scores with participation in the division's pre-K program is more speculative.

Proportion of Students Placed in Special Education. Clarke County school officials have reported that Clarke has one of the lowest

rates of special education enrollment in the State, and they attribute that largely to their preschool program. As shown in Figure 13, Clarke County's percentage of special education students has decreased in recent years (ranging from a high of 12.7 percent in 1998 to a low of 8.1 percent in 2005), when the percentage of special education enrollments statewide has been slightly increasing (from 13.4 to 14.5 percent). Further, county school officials report that percentage further decreased to 7.4 percent in 2006, and that its special education percentage is the lowest in the State.

Figure 13: Percentage of Clarke County's Special Education Students Has Decreased



Note: Data are as of Dec. 1 for special education enrollment and Sept. 30 for fall membership.

Source: Virginia Department of Education.

It may be that this low level of special education enrollment in Clarke County is attributable more to the one-third of students who participated in the division's pre-K program, in light of the data JLARC staff have from kindergarteners in the 2006-07 school year. Assuming the patterns seen in the 2006-07 school year also occur in other school years, a higher proportion of the third of students who participated in the pre-K program also required special instructional needs, compared to the two-thirds of students who did not. Consequently, the population of students who participated in the pre-K program is more likely to affect special education enrollments than the population of students who did not participate.

SOL Test Scores. Using data that was examined statewide in Chapter 5, it is clear that Clarke County students generally do better on third and fifth grade SOL English and math tests, compared to their statewide counterparts, on average (Table 32). Looking at it different ways, Clarke County students' test scores tended to be consistently higher than expected. The table shows that Clarke County students' scaled test scores tended to exceed the corresponding average scores across all 132 divisions in Virginia. Their pass rates on these tests also exceeded the average pass rates across all 132 divisions in Virginia. (The averages across all divisions do not weight each school division by its student population, in contrast to the statewide averages shown in Table 21 in Chapter 5.)

Table 32: Clarke County Students Generally Scored Higher on SOL Tests of English and Math in 2006

	Average Across All 132 Divisions	Expected Clarke County Average	Actual Clarke County Average
Third Grade			
English scaled score	466.2	468.0	474
English pass rate	82.4	82.3	85
Math scaled score	488.3	492.4	512
Math pass rate	88.6	87.7	91
Fifth Grade			
English scaled score	476.2	487.1	498
English pass rate	85.0	89.0	91
Math scaled score	474.5	478.7	483
Math pass rate	80.8	82.3	82

Source: Analysis of data provided by the Virginia Department of Education.

However, among Clarke County students, the demographic factors associated with test scores are different compared to those of students statewide. Therefore, expected averages taking into account these demographic differences (and their statewide trends of association with test scores) were estimated using regression models developed for the analysis of SOL data in Chapter 5. Even though the expected test scores taking these demographics into account were generally higher than the averages across all divisions, the actual scores of Clarke County students tended to be even higher than this benchmark level.

This finding implies that something beyond the basic demographic background of Clarke County students is causing their test scores to be higher. Participation in the division pre-K program could be one factor contributing to these higher test scores. Yet it would only be a factor for one third of Clarke County students; it would not be a factor for the majority of students who did not participate in the program.

There could be other things that are "going right" in Clarke County elementary schools as well. These other factors could be occurring in kindergarten through fifth grade, and they may also be contributing to the higher test scores. Further, such factors that occur in elementary school could affect the majority of students who did not participate in the pre-K program, as well as the one-third that did. The current data do not allow the effects of the pre-K program and these alternative factors to be separated out and identified. Consequently, attributing higher school performance of Clarke County students (measured by third or fifth grade SOL test scores) to the pre-K program is speculative at this point.

CONCLUSION

It appears that less-disadvantaged children would benefit from a quality pre-K program if it were extended to them. Whether they would benefit as much as more-disadvantaged children is another question. Some studies indicate that more-disadvantaged children benefit more from pre-K programs than less-disadvantaged children. But attempts at quantifying the benefits of a pre-K program (whether targeted or universal) have had results that vary widely, and have been highly subject to dispute.

A universal pre-K program has the potential to be costly to the State and local governments. However, as shown in the next chapter, policy options are available that may mitigate this problem.

Chapter 10 Options for Expanding the Virginia Preschool Initiative

In Summary

When considering changes to the Virginia Preschool Initiative (VPI) program, several policy choices are available, and they are not mutually exclusive. One option for adjusting and expanding VPI is being put forward by the Governor. By partnering with private providers, this proposal is said to remove barriers in order to serve an additional 17,000 at-risk students who are not currently served, thereby more than doubling the size of the program to serve almost 30,000 four-year-olds by FY 2012. A positive aspect of the proposal is that it continues and expands the State's focus on serving children who may be at risk and not prepared for kindergarten. However, it appears unlikely that the proposal will serve as many children as has been stated.

Other policy options for moving the VPI program in the direction of a universal pre-K program include (1) using alternative revenue sources to help pay for the program, such as parent fees; (2) having a half-day versus a full-day program; (3) having a summer pre-K program that lasts five weeks versus a program that lasts the full academic year; and (4) requiring all local school divisions to offer a pre-K program.

Since the inception of the Virginia Preschool Initiative (VPI), the State has expanded the percentage of at-risk children unserved by Head Start to be served by VPI. Based on free lunch eligibility, in 1995-96, slots were available for 30 percent of unserved children. From 1996-97 to 2003-04, slots were available for 60 percent of unserved children. In 2004-05, that percentage was increased to 90 percent, and in 2005-06, the percentage was 100 percent.

Now, however, there is some interest in the question of expanding the children served beyond the number of slots which are provided based on free lunch eligibility. There are several policy options available to the State to potentially expand VPI to provide services to more four-year-olds. One option already proposed by the Governor is to expand the targeted VPI program. Other options could be considered if the State wishes to expand the pre-K program by making it more available beyond the population of at-risk children. Further, options for expanding the pre-K program can be combined, as shown by some illustrative scenarios later in this chapter.

GOVERNOR'S PROPOSAL FOR EXPANDING TARGETED VIRGINIA PRESCHOOL INITIATIVE PROGRAM

In August 2007, the Governor proposed funding an expansion of the VPI program to be accomplished by 2012. Currently (in 2007-08), DOE estimates that VPI will serve about 13,065 at-risk four-year-olds. Under the Governor's proposal, more than 16,600 additional children are to be served by 2012, bringing the total number of VPI slots to more than 29,700.

Three types of VPI slots account for the proposed increase of more than 16,600. First, the total includes filling 100 percent of the currently allocated slots. Allocated slots are based on the number of children who qualify for the free lunch program (which serves children from, for instance, a family of four with an annual household income less than $26,845). There are an estimated 5,864 of these slots which are not being filled by localities in 2007-08.

Second, the increased number of slots also includes about 2,730 free lunch slots which will be added by 2012 due to growth in the number of children to be served. DOE projects that the number of four-year-olds will grow from 100,050 in 2007-08 to 110,468 by 2011-12. Since about 26.2 percent of children are eligible for free lunches (according to fall of 2006 school nutrition program data), then over 2,700 of the increased number of children (10,418) may be eligible for the program based on the free lunch criterion.

Third, the proposal would add approximately 8,175 children to be served based on expanding VPI to include children who qualify for reduced price lunches (the program would then be serving children from a family of four with an annual income less than $38,203). The estimated number of reduced price lunch children is about 7.4 percent of the projected 110,468 four-year-olds in 2012. This percentage is about the same as the percentage of children who qualify for reduced price lunches based on fall of 2006 school nutrition program data.

The administration estimates the additional cost to the State associated with its proposal to be about $75 million, and proposes phasing in the expansion over the next two budget cycles. As with the current VPI program, the State and local governments would subsidize this expanded pre-K program for at-risk four-year-olds, and their parents would not be expected to pay any tuition.

Governor's Proposal Uses Per-Pupil Cost That May Be Too Low, but Appears to Include Extra Dollars for Funding Flexibility

Under the proposal, the addition of more children to be served will be phased in between the time of the proposal's adoption and the

year 2012. Costs for the proposal were developed using the current State-recognized per-pupil cost of $5,700.

However, as noted in Chapter 8, $5,700 may not be adequate as a per-pupil cost for a high quality pre-K program in FY 2007 and FY 2008, and that amount is likely to have even less buying power by FY 2012. Based on the survey done for this study, while rural localities typically see the $5,700 per-pupil amount as a reasonable FY 2007 cost for their program, suburban and urban localities typically see the amount as inadequate for high-quality pre-K, and these localities serve about three-fourths of VPI students.

It should be noted that the State's aggregate share of a $5,700 per-pupil cost (about 63 percent recently) multiplied times the approximate number of slots called for in the Governor's proposal produces a cost that is about $60 million per year, not $75 million. Governor's office staff explain that the $75 million cost estimate provides some extra dollars for flexibility in enhancing the program. Increasing the per-pupil amount is a possibility. But if the per-pupil cost figure is held at $5,700, it is likely that the added annual State costs to fund VPI slots will be far less than $60 million per year, because it is unlikely that the proposal will lead to serving as many children as has been represented to date.

Claims That the Proposal Will Add Almost 17,000 New Slots by 2012 Do Not Appear to Be Realistic

One of the realities of the VPI program as it exists today is that not all localities choose to participate. Further, some of the participating localities—including some large-size localities—do not fully utilize all of the VPI slots that they are allocated now.

Statements that by 2012 the program will serve 17,000 more students (and a total of 30,000 students) under the Governor's proposal rest upon several assumptions. The desired result depends upon all VPI-eligible localities choosing to participate. It assumes that localities will all find funding for their local share of the cost for all slots allocated by the State, as well as find private providers or their own space and teachers to serve more children. Specifically, in order to achieve the target figures,

- Localities eligible for VPI now but choosing not to participate would need to come into the program and fill 100 percent of approximately 1,453 allocated slots.
- Participating localities who do not now use all of their VPI slots would need to find local funding and fill 100 percent of 11,383 allocated slots (5,864 slots they are not using now, plus about 5,519 additional slots).

- Participating localities who are using all of their VPI slots now would need to expand their programs by an average of about 50 percent (they fill 7,175 slots now, and would need to fill 100 percent of another 3,536 slots).

The third item above seems most realistic at this time for two reasons. First, these localities are part of VPI and have already shown a willingness and ability to fill their allocated slots. Second, a JLARC staff survey asked school divisions which are using their VPI slots to identify "the number of additional VPI slots" their division "typically could use to meet all or almost all" of their at-risk needs. The typical percentage was about 50 percent, similar to the expansion which is contemplated for them under the Governor's proposal.

However, regarding the first item, assuming that localities not now participating in VPI will fill 100 percent of newly allocated slots appears problematic. And, regarding the second item, it needs to be recognized that many participating localities not now filling all of their VPI slots may be acting in this manner because they do not find it feasible or desirable to fill these slots under existing conditions.

Of the 5,864 allocated slots that are reportedly unfilled in 2007-08, 4,900 slots are in just 12 localities (Table 33). Collectively, these 12 localities will need to more than triple their number of filled VPI slots by 2011-12 in order for the statewide target of a program expansion of almost 17,000 children to be attained.

Table 33: Twelve Localities With the Most Unfilled VPI Slots Now Are Expected to More Than Triple Their Collective Number of Filled Slots by 2011-12

Locality	2007-08 Unfilled Slots	2007-08 Available Slots	2007-08 Filled Slots	2011-12 Total Slots To Be Filled
Fairfax	1,055	1,778	723	2,562
Prince William	711	729	18	1,820
Henrico	672	792	120	1,137
Alexandia	579	791	212	1,162
Virginia Beach	502	1,206	704	1,908
Chesterfield	389	489	100	775
Chesapeake	265	569	304	697
Arlington	241	641	400	808
Loudoun	213	213	0	721
Roanoke City	110	524	414	578
Accomack	82	172	90	233
Richmond City	81	963	882	1,671
Totals	**4,900**	**8,867**	**3,967**	**14,072**

Source: Virgina Department of Education, VPI Spring State Report for 2007-08, and DOE budget office projections to 2011-12.

These localities generally report local funding as well as space concerns as obstacles to filling more slots. Fairfax County, for example, has reported to DOE that it has unfilled slots because of "lack of space and unavailable matching funds." Funding a total of 2,562 slots at Fairfax's per-pupil cost of about $12,294 would entail a program cost of about $31.5 million. Given Fairfax's composite index and the State's use of a $5,700 total per-pupil cost in determining its share, the State would pay about $3.7 million of the cost, leaving $27.8 million in costs for Fairfax.

Information reported by Prince William to DOE indicates that it sees a per-pupil cost for preschool that exceeds the State's assumed cost of $5,700. The magnitude of the local cost is thus a problem for Prince William. Henrico has reported to DOE that a "lack of building space and local match funds" are reasons for its unfilled slots. Alexandria has told DOE that its local costs are 80 percent of a $9,800 cost, while the State pays 20 percent of a $5,700 cost. Virginia Beach has also reported to DOE that its unfilled slots are due to the fact that "additional local match funds are not available in the budget." It is questionable to raise expectations that these slots will all be filled by 2012, particularly if State support is predicated on a State share of a $5,700 per-pupil cost.

Proposed Approach to Expanding Pre-K Availability Does Not Address an Existing Funding Equity Concern

Currently, DOE determines the number of VPI slots that are to be available based on free lunch eligibility percentages and Head Start enrollments. Localities then use the criteria they have developed to determine which children are to be placed into the slots. Localities can choose to fully fund more preschool slots than the State recognizes as VPI slots. However, under the State's approach, for the children placed in the slots, the State and the locality pay 100 percent of the cost, and preschool is free for the child's family. For the child who is next in line in the locality priority scheme for a VPI slot but falls just short, nothing is paid by the State.

The Governor's current proposal appears to continue this general approach. Children eligible for slots get 100 percent government-paid preschool, but children barely missing eligibility are not part of the program, and nothing is paid by the State. This approach to expanding pre-K raises some equity concerns.

POLICY OPTIONS FOR EXPANDING PRE-K TO ALL FOUR-YEAR-OLDS IN VIRGINIA

If the primary goal of a State-run pre-K program is to reduce disparities in school readiness between more disadvantaged children

and those from more affluent backgrounds, then it makes sense for the State to target those disadvantaged children. But concerns for equity may make it impossible for the State to determine which children would have access and which ones would be denied access to the pre-K program. The question of who pays for the program is a different issue.

A way of addressing the concerns for equity is by assuming a goal of making pre-K available to all four-year-olds in Virginia. The administration originally estimated the annual cost of expanding VPI to all four-year-olds as approximately $300 million. It has been suggested that such an expansion, with State and local governments fully subsidizing pre-K for all four-year-olds, would be too expensive for the State to undertake, especially at a time of State revenue shortfalls.

Consequently, the administration has narrowed the proposed expansion to a subset of children by broadening the definition of "at-risk" children who would qualify for the VPI program. In other words, more children were targeted for the pre-K program, while others were left out. Under this proposal, an additional 17,000 four-year-olds in Virginia would qualify for a free pre-K program, while a vast majority of four-year-olds still would not.

However, policy options are available that would make participation in a pre-K program for all four-year-olds in Virginia less costly to the State and local governments. For instance, there is the option of allowing more affluent parents to pay a greater share of the costs of an expanded pre-K program through a graduated schedule of parent fees, based on parental income. In this way, State and local governments could afford to pay a greater share of the costs of participation in the pre-K program for those children from disadvantaged backgrounds, while still allowing children from more affluent families the opportunity to participate. Having a more gradual fee schedule would avoid the need to make decisions as to who does and does not get to participate based on an arbitrary family income threshold, while at the same time it could tap a potential revenue source.

Before estimating the costs to the State of expanding the pre-K program to all four-year-olds in Virginia, it is necessary first to estimate, under varying assumptions, the total operating cost of expanding the basic full-day, academic year-long pre-K program, regardless of who is paying for it. Then several options can be considered. One option is to consider alternative revenue sources, such as assessing fees to parents with higher levels of income, to help pay for an expanded pre-K program. Other options include whether to have a full-day program for all students or a half-day program for students in the expanded pre-K program; whether to

have the expanded program last an entire academic year or to focus on a few weeks in the summer immediately before the students' entry into kindergarten (or do both); and whether to require all school divisions to offer a pre-K program.

Total Operating Costs of Expanding Pre-K to All Four-Year-Olds in Virginia

Assuming there are 526,158 children under age five in Virginia, about one-fifth, or roughly 105,000, of them are four-year-olds. Some of them are already eligible for government-sponsored preschool programs: 18,730 for VPI, 8,502 for Head Start, 6,025 for Special Education programs, and 4,548 for Title I programs, leaving about 67,000 who currently would be eligible for an expansion of a State-sponsored pre-K program.

Several components of this annual total cost estimate could vary. The assumed participation rate in this new pre-K program could be as low as 30 percent (the approximate participation rate currently in Clarke County's universal pre-K program) or as high as 100 percent. Further, the per-student operating cost of the program could range from an amount as low as $5,700 (which is currently used for the VPI program) to an amount as high as $7,920 (based on the prevailing cost per pupil in an elementary school program, as estimated under the "Cost of Achieving Parity With K-12 Education" option in Chapter 8). Therefore, the total operating costs of expanding the VPI full-day program to all remaining four-year-olds in Virginia could range from approximately $115 million to $534 million (Table 34). These operating cost estimates do not include the capital costs associated with the need for expanding facilities to accommodate the additional pre-K students.

Table 34: Annual Total Operating Cost Estimates of Expanded Pre-K Program Under Different Assumptions

Assumed Participation Rate (percent)	Assumed Cost Per Student	
	$5,700	$7,920
100%	$384,333,900	$534,021,840
90	345,900,510	480,619,656
80	307,467,120	427,217,472
70	269,033,730	373,815,288
60	230,600,340	320,413,104
50	192,166,950	267,010,920
40	153,733,560	213,608,736
30	115,300,170	160,206,552

Source: JLARC staff analysis.

Alternative Revenue Sources: The Option of Parent Fees

Parents in Virginia are already paying providers a substantial amount for child care each year. Of the approximately 105,000 four-year-olds in Virginia, about 19 percent of them are currently placed in private child care centers, 12 percent in religious facilities, and 24 percent in home-based family child-care settings. The average annual fee paid for full-time center care for a four-year-old is $7,488, and the fee paid for home-based care is $6,552, on average. As a result, Virginia parents may already be paying providers up to $409 million a year for child care for their four-year-olds. Therefore, the policy option of having a sliding scale of parent fees, based on parental income, may appropriately tap this potential revenue source to help pay for the operating cost associated with making the State pre-K program available to all four-year-olds.

An Illustrative Example. It is possible to design a schedule of parent fees, based on income, that could be used to help pay a substantial portion of the operating cost of expanding the pre-K program to all four-year-olds. For the following illustrative example, a number of assumptions are made:

- The distribution of income for parents of four-year-olds is the same as the distribution of income for all households, as reported by the 2006 American Community Survey from the U.S. Census Bureau.
- Assuming a participation rate of 100 percent, the assumed annual per-student cost is $6,800 (approximately the prevailing cost of high-quality preschool, as reported on the JLARC staff survey of school divisions). Consequently, the assumed total operating cost of expanding the pre-K program would be roughly $459 million.
- Parents of at-risk children who are eligible for current government-sponsored preschool programs (such as VPI, Head Start, and Title I) will continue to pay none of the program costs.
- Parents of children who are not eligible for at-risk preschool programs will be assessed tuition, based on the following sliding scale:
    - For every $1,000 of income above $15,000, the parents would be assessed a fee of 1.64 percent of the per-student cost. In this example, the fee would increase by $111.48 for every additional $1,000 of income.
    - Parents with an income of $75,000 or more would be assessed the full per-student cost of $6,800. This amount can be compared to the average annual fee

in Virginia for full-time center care for a four-year-old, which is $7,488 for a 12-month year, and which can be pro-rated to $5,760 to $6,480 for a 40- to 45-week school year.

In this illustrative example, the assessed parent fees would first be subtracted from the total cost to determine how much is to be paid by the State and local governments. This remainder would have the composite index applied to it to determine the local government share of the cost, so that the State's obligation would be to pay for what is left over. This method is consistent with other education formulas, including that of VPI.

The assessed parent fees would cover about $316 million of the total operating cost of expanding the pre-K program, leaving the local government share at about $63 million and the State share at about $80 million.

Variations on this illustrative example are possible. For instance, policymakers may desire that higher-income parents would pay less than the full cost of $6,800, such as a maximum of $6,100 (such that State and local governments would be subsidizing at least $700 of the cost of each student). This policy option could be motivated by a desire to encourage parents to enroll their four-year-olds in a pre-K program with an educational component, rather than using cheaper child-care options. In that case, the sliding scale in this example would be such that the parents' fee would increase by $100 for every additional $1,000 of income above $15,000. Then the assessed parent fees would be about $283 million, with the local government share about $78 million and the State share about $98 million.

The assumption of 100 percent participation, at least in the early years of such a program, may not be realistic. The following alternative assumptions about participation rates (that still would likely err on the high side) may be more realistic:

- For children in the group receiving a government subsidy based on the sliding scale (that is, their parents have incomes in the $15,000 to $75,000 range), the participation rate would be about two-thirds. This rate is close to the participation rate of the current VPI program and of Oklahoma's and Georgia's universal pre-K programs.
- For children in the group paying the full operating per-pupil cost of the expanded pre-K program (that is, parents with incomes of $75,000 and more), the participation rate would be about one-third. This rate is similar to that currently observed in Clarke County's universal pre-K program.

With these alternative assumed participation rates, the cost estimates are lower. Assuming no cap is put on the individual parents' fees (other than the assumed per-pupil operating cost of $6,800), the total cost of the program would be about $243 million. About $148 million would be paid through parent fees, $42 million by local governments, and about $53 million by the State. Assuming a cap of $6,100 is put on the individual parents' fees, the total cost would still be about $243 million. But about $133 million would be paid through parent fees, with about $49 million paid by local governments and about $61 million by the State.

Another variation on this illustrative example is to assume different per-pupil operating costs. For instance, the prevailing cost per pupil in an elementary school program, as estimated under the "Cost of Achieving Parity With K-12 Education" option in Chapter 8, is $7,920. This amount is about 16 percent more than the $6,800 estimate. If this higher per-pupil cost is assumed instead, all cost estimates should generally be about 16 percent higher than the ones based on the $6,800 per-pupil cost.

Features of the Illustrative Example. There are other features of this illustrative example that are worth mentioning.

- The key assumptions in the illustrative example could be easily changed. For example, other income thresholds for the sliding scale, and other percent changes in fees per $1,000 of parent income, could be used.
- The State payment can be regarded as a flat amount paid to each local school division for its local pre-K program. The local school divisions would have considerable freedom to choose how they wish to combine funds and to implement their pre-K programs.
- The parent fees would be collected on the local level. If preferred in some localities, the parent fees could be reduced or waived if the local government is willing to absorb the cost.
- When collecting parent fees for students who do not qualify as "at risk," the default could be the full program cost per child. Parents could then be advised to bring to the local VPI coordinator (or some other designee of the pre-K program) a copy of their most recently filed income tax form, to determine what, if any, State and local government subsidy might be applied to their fees, based on their income level. In the case of divorced or separated parents, the income tax forms of both custodial and non-custodial parents would be requested to qualify for a government subsidy.
- Having more affluent parents pay something for their children's preschool (rather than getting it for free) could provide

an incentive for them to consider private and religious-affiliated providers as an alternative. This situation could keep these providers who remain outside the State's pre-K system competitive, rather than driving them out of business.

- Participation in the State's expanded pre-K program would more likely be lower among the parents who would pay higher fees.

The Option of a Scholarship Program. The State could further help families afford the fees for early childhood education by creating a tax credit that would raise money for scholarships. Pennsylvania currently has such a program. The Pennsylvania pre-K plan awards a corporation a 100 percent tax credit for its first $10,000 in contributions to a nonprofit pre-kindergarten scholarship organization and up to a 90 percent credit for contributions up to $100,000. The scholarships could be awarded based on family income or other indicators of need or risk.

Advocates for this approach have suggested that a scholarship approach is a less expensive approach to pre-K than governmental approaches, comparing Pennsylvania's low average scholarship cost to the per-pupil price tag that is associated with the State's planned expansion of pre-K. For example, in an article appearing in a Richmond newspaper under the headline "Education Tax Credits Cost Less, Do More on Pre-K," an education policy analyst stated:

> The Pennsylvania business donation tax credit for pre-K is already helping thousands of low-income children [emphasis added] with a relatively small amount of money… The Commonwealth Foundation, a Pennsylvania think tank, found that those kids were helped with an average of just $1,370, compared with the government-run plan that would cost $6,750 per child.

This is not a case, however, in which there are two options for accomplishing the same end and one is simply less costly than the other. In a VPI classroom with 18 children, the current maximum number allowed by standards, the cited per-pupil scholarship amount of $1,370 would provide $24,660 for that classroom. Based on the average class size for VPI (about 15 children), the cited per-pupil amount would pay $20,550 in costs. These amounts would pay the compensation costs of an instructional assistant for the class, but not the costs for a well-qualified lead teacher plus an instructional assistant plus reasonable support costs. An attempted State expansion of the program through just the use of a Pennsylvania-style scholarship program would not be adequate to meet

the costs, leaving a substantial balance of unmet costs for the low-income family or for local government to pay if the program is to operate.

In addition, written policies regarding this scholarship fund would be needed to prevent misuse, specifying

- who would be administering the fund;
- who would be eligible to receive a scholarship, based on what criteria; and
- what the amount of the scholarship would be, based on what criteria.

Care should be taken to ensure that the scholarship would go only to families in need, and would be in proportion to need—rather than, for instance, a flat amount for which upper-middle- and upper-income parents would be eligible as well as lower-income parents.

The Option of Half-Day Versus Full-Day

Most local VPI programs currently are full-day programs, lasting at least six hours. However, some localities have chosen to have half-day programs, meaning that the preschool class meets for approximately three hours each day. As a result, the State currently funds half-day VPI programs at 50 percent of the full-day per-pupil rate.

The State could choose to make available to all remaining four-year-olds a half-day, rather than a full-day, pre-K program. Choosing this option could reduce by 50 percent the State's share of the cost in the illustrative example (from $53 million to about $26.5 million), although the actual cost to be covered by the locality and parent fees may not necessarily decrease by 50 percent.

A 2006 study by Robin, Frede, and Barnett of the National Institute for Early Education Research (NIEER) found that the benefits of full-day preschool over half-day programs are significant. The NIEER study is based on a randomized trial that compared children from low-income families in a school district in New Jersey who attended half-day and full-day public preschool programs that lasted for 41 to 45 weeks. Results show that children attending a 2.5- to 3-hour public preschool program had improved (by six to seven standard score points) on vocabulary and math tests by the spring kindergarten assessment, but that children attending an eight-hour program had improved even more (by 11 to 12 standard score points). The authors concluded:

> Results of this study indicate that even students who are far behind at entry to preschool can develop vocabulary, math, and literacy skills that approach national norms if provided with extended-duration [that is, full-time] preschool that maintains reasonable quality standards.

Thus it appears, among low-income students at least, that half-day programs lasting the entire school year can benefit students, but that full-day programs can benefit them even more.

The Option of a Summer Pre-K Program Lasting Five Weeks

Opponents to universal pre-K have promoted a summer pre-K program as a less-expensive alternative to a pre-K program lasting a full academic year. The idea of providing a summer pre-K program is not new to many school divisions in Virginia. At least 30 already provide their at-risk preschool students with classes or programs during the summer leading into the kindergarten year. In particular, of the 78 divisions responding to the JLARC staff survey,

- 16 reported providing summer school classes,
- 12 reported having a special transitional program for pre-K students moving to kindergarten, and
- two reported that the program offered by contracted providers continues during the summer.

The "Ready to Start" program is an example of a summer pre-K program that has been used as an alternative to a program lasting a full academic year. This program has been operating for the last four years in the Greenfield Union and Rosedale Union School Districts in Kern County, California. Ready to Start is an intensive, four- to-five week school readiness program targeting, in the summer before they enter kindergarten, those four-year-olds with no preschool experience. Classes meet for three hours per day for five days each week. Using certified teachers, teacher aides, classroom coaches, and existing school classroom facilities, the Ready to Start program provides a structured, academic pre-kindergarten curriculum designed to give students the skills most needed to succeed in kindergarten.

Children's academic skills are evaluated on 24 key reading, math, and other skills before entering the program and at the end. In the Greenfield school district, the test scores of Ready to Start students were about 30 percent higher than scores of a control group of district students who did not attend any preschool. After one semester of kindergarten, the Ready to Start children continued to perform better than the students in the control group. In the Rosedale school district, follow-up testing showed the Ready to Start

students performed as well or better than other kindergarteners, nine out of ten of whom had some type of preschool experience.

The cost of the Ready to Start program is about $350 per student. Assuming that in Virginia all children not deemed "at risk" would participate in such a summer program, if there were no parent fees such that the State and local governments were to fully absorb the costs of such a program, the State share would be as much as $13 million and the matching local share would be about $11 million. If parent fees were to be collected on a sliding scale in a manner consistent with the illustrative example above, then the parents' fee would increase by $5.74 for every additional $1,000 of income above $15,000. As a result, parent fees would cover about $16 million of the costs, the State share would be about $4 million, and the local government share would be about $3 million. However, assuming that 42 percent of the children not eligible for "at risk" preschool programs still have some preschool experience (as they do now), such that 58 percent would be participating in such a summer program, the cost estimates would be even lower.

According to the Rosedale School District Superintendent, the four-week summer pre-school program was intended as a first component, with a full school year program to be the next component added. However, after only the summer school component was pilot tested for a couple of years and the results became known, it was presented as an alternative to year-round pre-K. The full school year program component has not been added to the pilot Ready to Start program in Kern County. However, the option still exists to provide a four- to-five week summer program as a supplement to, rather than instead of, a pre-K program that takes place during the full academic year.

When comparing a four- to-five week program (such as the Ready to Start program) with a pre-K program that lasts a full school year (such as the VPI program generally is in local school divisions), a key decision is the amount of preparation and readiness for kindergarten to require. In particular, it appears that the standards of the Ready to Start program may be the most essential for school readiness, but they are not as comprehensive as *Virginia's Foundation Blocks for Early Learning* (DOE's standards for four-year-olds). For example, the Ready to Start Curriculum Scorecard has as a desired result of math activities that the student can accurately count from one to ten; the Virginia Mathematics Foundation Block objective is for the student to count to 20 or more. As another example, the Ready to Start Curriculum Scorecard has as a desired result of teaching alphabet letters that the student can say the alphabet in songs and games; the Virginia Literacy Foundation Block on letter knowledge aims to have the student correctly identify 10 to 18 alphabet letters by name in random order.

In general, it appears that mastery of the Ready to Start objectives is necessary before the *Virginia Foundation Blocks* objectives could be achieved.

But the question of whether a more focused, shorter program is sufficient to meet the needs of students entering kindergarten may require the testing of pilot programs in Virginia before offering such a program statewide. Such pilot tests should compare kindergarten students who were in a four- to-five week pre-K program with

- kindergarteners who had no preschool experience, and
- kindergarteners who were in a full-day pre-K program that lasted the entire school year (about 40 to 45 weeks).

Students in these pilot tests should be assessed using measures such as the Phonological Awareness and Literacy Screening (PALS-K) assessment and nationally normed tests such as the Woodcock-Johnson Achievement Test. The following questions when comparing these three groups of kindergarteners should be asked:

- Do students who had a four- to-five week pre-K program score significantly higher on these measures than students with no preschool experience?
- Does attending a full-day pre-K program during the entire school year result in better test scores or other outcomes, compared to attending the four- to-five week, half-day program? What exactly does a more extensive pre-K program buy?

The Option of Requiring All School Divisions to Offer Pre-K Program Addresses Equity Concerns, But Would Be Difficult

Equity concerns could lead to the goal of providing all students in the State access to a pre-K program, regardless of what locality they live in. The current situation of having local participation in the VPI program voluntary could seem inequitable, from a family and student perspective. For example, it may seem inequitable when an at-risk child living in Manassas Park (which participates in the program) may have access to a free, high-quality, State-sponsored pre-K program, when that same child, if living in Manassas City (which does not participate) may not.

One proposed way of requiring all school divisions to offer a pre-K program is to include it in the Standards of Quality (SOQ). Including a pre-K program in the SOQ would be assuming that a pre-K program is an essential part of the State's minimum requirements

for a foundation elementary and secondary education program, like kindergarten is now. But unlike the mandatory education requirements for children age five and older, there currently is no statute mandating that four-year-olds attend some educational program. Therefore, including a pre-K program for four-year-olds in the SOQ does not seem appropriate unless there is a change in statute requiring four-year-olds to attend an educational program. Currently, attendance of four-year-olds in educational programs is voluntary. This change in statute would represent a fundamental policy change in the State's requirement for when to begin a child's formal education.

There already is wide variation in education programs offered by the different school divisions, in part because of differences in local aspiration and differences in local willingness to pay for essentially voluntary programs. Some of the differences in local aspiration may be in response to the demands placed on the school division by local parents. Differences in the local willingness to pay for these programs may also reflect differences in localities' abilities to generate revenues. The State currently recognizes these differences in both mandating a fundamental education program (the SOQ) and providing initiatives outside the SOQ in which it is up to local decisions to participate. To shift the pre-K program from one that is currently voluntary to one that is mandatory would entail a fundamental policy shift.

Further, the consequences to the State of a requirement that all school divisions offer a pre-K program depend on exactly what, at a minimum, is required by the State. If the minimum requirement is a summer, four- to-five-week pre-K program, then there may not be such a need for expanding existing local facilities that would require State involvement.

On the other hand, if the minimum requirement is a pre-K program that lasts throughout the academic year (like the current VPI program), then the State may have to be more involved in local facility issues and possible capital costs associated with the necessary expansion of facilities to be available during the academic year. This situation could be difficult for the State to manage adequately, because local school divisions since the 1930s have had primary responsibility for providing their facilities, and they have had considerable flexibility in determining how to use their facilities. (For example, facilities such as trailers originally planned for younger students may be used by older students instead, or vice versa.)

Another aspect of the need for facilities for an expanded pre-K program is the administration's proposal to enlist the facilities of private providers. The administration proposes to "partner with pri-

vate providers" who meet State standards and participate in its plan for serving a total of 30,000 four-year-olds in VPI by FY 2012. This partnership would include using the facilities of these private providers. While this plan may alleviate the need for school divisions directly to provide new facilities in some localities, it is essentially voluntary and requires private providers to be meeting State standards. There is no guarantee that this proposal would meet the facility needs in all localities, especially if there are not enough local providers willing to participate or meet State standards. Consequently, the local school divisions would still have the responsibility of ensuring that there are adequate facilities, and the State would still have some role in ensuring that facility needs are met.

ILLUSTRATIVE SCENARIOS OF COMBINING POLICY OPTIONS FOR EXPANDING THE PRE-K PROGRAM

It is possible to tailor an expansion of the current pre-K program more to the State's current situation by considering possible combinations of policy options. These possible combinations are illustrated in the following scenarios: (1) assuming minimal new public money available—offering a summer program only, to children without preschool experience, and with parent fees; (2) expanding the VPI program to more low-income children (as the Governor currently proposes), while offering a summer program to everybody else without preschool experience (with parent fees); (3) offering a full-day, school-year-long pre-K program to everyone (with parent fees), and offering a summer session to those who do not participate and have no preschool experience; and (4) a variation of scenario 3, but with parent fees paying for a greater portion of the operating costs so that State and local government costs are substantially lower.

All scenarios assume that all localities are fully participating in the program, so that the participation rates are primarily limited by parents' willingness to have their children attend the pre-K program. Consequently, the cost estimates associated with the following scenarios would be on the high side, because they are allowing for the potential participation of children who may not attend the program, for reasons not included in the following assumptions. If alternative assumptions were to be made about lower participation rates, the cost estimates could be reduced accordingly.

Scenario 1: Minimal State and Local Government Costs

Assuming that something is to be done for all children who are not currently eligible for public preschool programs, yet that budget constraints are paramount, there are still courses of action that

the State can take, as illustrated by this scenario, which makes the following assumptions:

- The cost of a four- to-five-week summer session is $350.
- All local school divisions are assumed to be participating. If some are not participating, the cost estimates of this scenario would be lower.
- About 42 percent of the children not currently eligible for "at-risk" preschool programs still have some preschool experience with private or church-affiliated providers. Therefore, the remaining 58 percent would otherwise have no preschool experience and would be eligible for the summer session.
- Parent fees for the summer session are collected on a sliding scale, such that the parents' fee would increase by $5.74 for every additional $1,000 of income above $15,000. Parents with combined income equal to or greater than $75,000 pay 100 percent of the $350 fee.
- The distribution of income of parents of four-year-olds is the same as the distribution of income for all households, as reported by the 2006 American Community Survey from the U.S. Census Bureau.
- There is 100 percent participation among the children eligible for the summer session.

The total operating cost of this scenario would be about $13.7 million. About $9.4 million would be covered by parent fees, the local government share would be about $1.9 million and the cost to the State would be about $2.4 million.

This scenario has several advantages:

- Approximately 37,000 children would be helped to acquire the skills most needed to succeed in kindergarten at about 1/20th the cost of a full-day, full-school-year preschool program, when they would not otherwise receive this help before entering kindergarten.
- There would be no major capital costs for facilities, because existing school facilities that may otherwise be vacant could be used during the summer.
- Students would still be free to attend full-day, full-school-year preschool programs provided at private or religiously-affiliated facilities, if their parents so choose.
- Private and religiously-affiliated providers would not be so adversely impacted by competition from the public school programs.

- By having the pre-K program targeted to students the summer before they enter kindergarten, the average age of students would be older (compared to those in a program taking place during the previous academic year). These older students may be able to master and retain more of the content of the program, compared to younger students.
- More advantaged children especially (without preschool experience) may not need full-day preschool for the full school year, so a four-week summer session may be a more efficient way for them to acquire the most essential skills for kindergarten.
- The costs to the State and local governments are low.

But this scenario has disadvantages, also.

- A half-day, four-week summer session may not prepare students for kindergarten as thoroughly as a full-day program that lasts the entire academic year.
- Lower-income or more disadvantaged students may especially need greater preparation for kindergarten than a summer session would provide, and their families would be unable to afford full-day preschool with a private or religiously-affiliated provider. Instead, they are getting a second-best alternative.

Scenario 2: Broaden Eligibility for VPI Program to More Lower-Income Students, and Offer Summer Session to the Remainder

This scenario builds on the Governor's plan for expanding the VPI program to a disadvantaged segment of the student population, and offers something to everyone else. Under this scenario, minimizing State and local government costs is not as high a priority. More specifically, this scenario is based on the following assumptions:

- Free preschool is offered to families who qualify for free and reduced price lunches. Eligibility for the VPI program is extended to about 17,000 children beyond the approximately 13,000 currently served. Assumed enrollment figures and projected costs of the Governor's proposal are applied as given.
- All local school divisions are assumed to be participating.
- Although the Governor's plan does not offer free or subsidized pre-K services for middle- and upper-income families, this scenario offers a summer session to all four-year-olds with no preschool experience.

- The cost of a four- to-five-week summer session is $350.
- About 42 percent of the 50,000 children not eligible for VPI or other government preschool programs have some preschool experience with private or religiously-affiliated providers.
- Parent fees for the summer session are collected on a sliding scale, such that the parents' fee would increase by $5.74 for every additional $1,000 of income above $15,000. Parents with combined income equal to or greater than $75,000 pay 100 percent of the $350 fee.
- The distribution of income of parents of four-year-olds is the same as the distribution of income for all households, as reported by the 2006 American Community Survey from the U.S. Census Bureau.
- There is 100 percent participation among the children eligible for the summer session.

The Governor's plan is estimated by the administration to cost the State $75 million annually and local governments about $60 million. Offering a summer session to four-year-olds with no preschool experience would cost an extra $10.2 million—with $7.0 million to be covered by parent fees, $1.8 million to be covered by the State, and $1.4 million to be covered by local governments. Consequently, under this scenario the State costs would be about $77 million and local costs about $61 million. This scenario has several advantages:

- It makes available a full-day, full-school-year pre-K program to lower-income children, who would likely need it the most. Further, because these children are from families that could less likely afford paying for such a program, it provides it to them for free.
- It ensures that all children have available some preschool experience or summer session experience to prepare them for kindergarten.
- Providing a less extensive program to more advantaged children (with no preschool experience) may more efficiently serve their needs.

But this scenario also has its disadvantages:

- The system still has an "all or nothing" quality to it. The system still fully subsidizes a full-school-year pre-K program to those who qualify for the "at risk" threshold, but does substantially less for those who do not qualify.

- Parents of children who do not qualify for being "at risk" (but may be near the income threshold) may still wish to place their children in a full-day, full-school-year pre-K program while they work, but receive little or no assistance to do so.

Scenario 3: Offer Full-Day Pre-K Program Throughout the School Year to Everyone (With Parent Fees), and Offer Summer Session to Those With No Preschool Experience

This scenario combines the option of having a universal pre-K program with a sliding scale of parent fees and the option of having a summer session for those who do not participate. This scenario makes the following assumptions:

- Instead of expanding a fully-subsidized VPI program to a portion of the student population, a full-day pre-K program throughout the school year is offered to all children, with parents assumed to be paying at least a portion of the operating costs (depending upon their level of income).
- The assumed per-student operating cost is $6,800.
- The sliding scale of parent fees in this scenario is the same as the illustrative example from page 142 of this report.
    - For every $1,000 of household income above $15,000, the parents would be assessed a fee of 1.64 percent of the per-student cost. In this example, the fee would increase by $111.48 for every additional $1,000 of income.
    - Parents with $75,000 income or over would be assessed the full per-student cost of $6,800.
- The distribution of income of parents of four-year-olds is the same as the distribution of income for all households, as reported by the 2006 American Community Survey from the U.S. Census Bureau.
- All local school divisions are assumed to be participating. Again, if some are not participating, the cost estimates of this scenario would be lower.
- Because participating parents are assumed to pay a substantial portion of the operating costs of an expanded State pre-K program that lasts the full academic year, and participation is voluntary, the assumed participation rates are (1) two-thirds for students from families with annual income in the range of $15,000 to $75,000; and (2) one-third for students from families with annual incomes of $75,000 and more.

Therefore, the total operating cost of this portion of an expanded pre-K program is roughly $243 million.

- Roughly 42 percent of the four-year-olds not participating in the expanded State full-year pre-K program attend preschool in private or religiously-affiliated facilities. As a result, about 18,400 four-year-olds would have no preschool experience. These four-year-olds would be eligible for the summer session.
- The participation rate of students eligible for the summer session is assumed to be 100 percent.
- The cost of a four- to-five-week summer session is $350.
- Parent fees for the summer session are collected on a sliding scale, such that the parents' fee would increase by $5.74 for every additional $1,000 of family income above $15,000. Parents with combined income equal to or greater than $75,000 pay 100 percent of the $350 fee.

The costs of this scenario would be the sum of the costs of a State full-day, full-school-year pre-K program and the costs of a summer session for those children without preschool experience. Under these assumptions, parent fees would cover about $148 million, local governments about $42 million, and the State about $53 million of the operating costs of the State pre-K program during the academic year. The summer session would cost in total up to $6.4 million, with parent fees paying for approximately $5.0 million, local governments about $630,000 and the State about $791,000 of the costs. Consequently, in this scenario parents would pay a total of about $153 million, local governments about $43 million, and the State about $54 million. This scenario has several advantages:

- A full-day pre-K program that lasts for the full school year is available to all four-year-olds in Virginia. Nobody in a participating school division would be excluded from this program on the basis of family income.
- There are no arbitrary income thresholds for eligibility to the extended pre-K program. Consequently, there are no sudden large shifts in preschool costs to parents if they go from one level of income to another.
- Upper-middle-income and upper-income parents are allowed to participate in the program, but are not having the early education costs of their children fully subsidized by State and local government (as the costs of at-risk children would be).
- Lower-income students may mix with more advantaged students in the extended pre-K program.

- Having an extended pre-K program available to more advantaged students may better accommodate their parents' work schedules.
- Having the parents pay at least some of the operating cost of their children attending the pre-K program makes a universal pre-K program feasible, when otherwise it may have been too expensive for State and local government to fund.
- With many parents paying most or all of their children's operating cost in the State program, private providers outside the State system remain a competitive alternative.

However, this scenario also has its disadvantages:

- The capital costs, and the associated difficulties, of expanding facilities to accommodate a universal pre-K program during the school year in some local school divisions may be considerable.
- Staffing an expanded pre-K program during the school year may make recruiting and retaining elementary school teachers more difficult in school divisions that are already experiencing staffing problems.
- Some localities may have difficulty finding the extra money needed for the local share of this program. Likewise, the State may experience difficulty raising the additional revenues needed during a time of revenue shortfalls.

Scenario 4: Same as Scenario 3, but With Greater Reliance on Parent Fees

This scenario also entails offering a full-day pre-K program throughout the school year to all four-year-olds, and offering a summer session to those with no preschool experience. But instead of relying as much on State and local funding, greater reliance is placed on parent fees to meet the operating costs. The assumptions from Scenario 3 apply to Scenario 4 as well, except the assumptions on which the parent fees are based.

- The sliding scale of parent fees in this scenario is assumed to be:
    - For every $1,000 of income above $15,000, the parents would be assessed a fee of 3.0 percent of the per-student cost. In this example, the fee would increase by $188.89 for every additional $1,000 of income.
    - Parents with $50,000 income or over would be assessed the full per-student cost of $6,800.

- Parents of at-risk children who are eligible for current government-sponsored preschool programs (such as VPI, Head Start, and Title I) are still assumed to continue to pay none of the costs of the program.
- Participating parents in the $15,000 to $75,000 annual income range are assumed to pay an even greater portion of the operating costs of an expanded State pre-K program, and participation is voluntary. The assumed participation rates are (1) two-thirds for students from families with annual income in the range of $15,000 to $50,000; and (2) one-third for students from families with annual incomes of $50,000 and more. Therefore, the total operating cost of this portion of an expanded pre-K program is roughly $199 million, although this estimate may be considered to be on the high side. If the participation rates were lower, the estimated total cost would be lower.
- Parent fees for the summer session are collected on the same percent sliding scale, such that the parents' fee would increase by $9.72 for every additional $1,000 of income above $15,000. Parents with combined income equal to or greater than $50,000 pay 100 percent of the $350 fee.

The main difference between Scenario 3 and Scenario 4 is that under Scenario 4, a larger segment of parents receive no subsidy from State and local government, and the average participation rate in the full-year program is lower. Some of the cost of this program is shifted from State and local governments to parent fees. The allocation of costs of the State pre-K program for the academic year would be about $165 million in assessed parent fees, approximately $19 million to be paid by the State, and roughly $15 million to be paid by localities. Of the $7.8 million in summer session costs for students without preschool experience, parents would pay about $7.3 million, the State about $278,000 and local governments about $222,000. As a result, under Scenario 4 parents would pay about $173 million, local governments about $15 million, and the State about $19 million.

The primary advantages and disadvantages of this scenario can be seen by comparing Scenario 4 with Scenario 3. The main advantage of Scenario 4 is that the State would be paying less than a third of what it would be under Scenario 3. The main disadvantage is that shifting more of the costs to the parents in the $15,000 to $75,000 income range would make participating in the State pre-K system a more expensive option for them (as shown in Table 35), so that a larger-than-anticipated proportion of them may opt out. However, the programs of private and religiously-affiliated providers would remain a viable alternative, so these programs would remain competitive.

Other scenarios with other schedules of parent fees could be developed. The schedules used in these four illustrative scenarios were developed to demonstrate the magnitude of potential consequences of different key policy options.

Table 35: Assumed Parent Fees for Different Income Levels Under Different Illustrative Scenarios

Assumed Parent Income Level	Assumed Annual Parent Fees	
	Scenario 3	Scenario 4
$15,000	$111.48	$188.89
20,000	668.85	1,133.33
25,000	1,226.23	2,077.78
30,000	1,783.61	3,022.22
35,000	2,340.98	3,966.67
40,000	2,898.36	4,911.11
45,000	3,455.74	5,855.56
50,000	4,013.11	6,800.00
55,000	4,570.49	6,800.00
60,000	5,127.87	6,800.00
65,000	5,685.25	6,800.00
70,000	6,242.62	6,800.00
75,000	6,800.00	6,800.00

Source: JLARC staff analysis.

List of Recommendations:

Virginia Preschool Initiative (VPI): Current Implementation and Potential Changes

1. The Virginia Department of Education should conduct a longitudinal study of students who completed the Virginia Preschool Initiative (VPI) and other preschool programs to determine how these students perform on Standards of Learning (SOL) tests throughout school. The first such study should report on the performance of VPI graduates on the 2010-11 third grade SOL tests.

2. The General Assembly may wish to provide the resources needed to enable the Department of Education to (1) facilitate information sharing across local Virginia Preschool Initiative programs about how the programs are being implemented, and (2) keep local program coordinators well-informed of program updates or changes.

3. The General Assembly may wish to increase the State's capacity to facilitate classroom observations of local Virginia Preschool Initiative programs and the provision of technical assistance and mentoring to help programs improve. The State should also develop a formal method for tracking the results of classroom observations, and it should adopt a particular instrument(s) to use for conducting observations.

4. The General Assembly may wish to direct the Secretary of Education's Office and the Department of Education to develop a proposed professional development plan for the State to support the Virginia Preschool Initiative program.

Appendix A

Study Mandate

HOUSE JOINT RESOLUTION NO. 729

Directing the Joint Legislative Audit and Review Commission to study the Virginia Preschool Initiative. Report.

Agreed to by the House of Delegates, February 2, 2007
Agreed to by the Senate, February 21, 2007

WHEREAS, in 1992 the General Assembly created the Commission to Review Recommendations on Educational Opportunity, which evolved into the Commission on Equity in Public Education; this Commission proposed legislation in 1994 to improve student achievement and create a preschool program for at-risk four-year-olds; and

WHEREAS, the General Assembly strengthened and expanded the preschool initiative in 1995 to provide comprehensive preschool programs to all of Virginia's at-risk four-year-olds who are not being served by Head Start; and

WHEREAS, funding for the statewide preschool initiative is shared by state and local governments based on the composite index of the local ability to pay; and

WHEREAS, appropriations for the Virginia Preschool Initiative increased from $18.2 million in 2003-2004 to $38.5 million in 2005-2006, and current appropriations raise the state's share per student from $5,400 to $5,700, increasing the 2006-2007 total estimated distributions to participating school divisions to $49.6 million; and

WHEREAS, if all school divisions participated fully in the Virginia Preschool Initiative, the total state share of the costs would equal $62.2 million for 2006-2007; and

WHEREAS, in 2006 the teacher-student ratio for preschool programs was changed to 18:1 for consistency with state law; and

WHEREAS, research demonstrates that high quality preschool programs can have a substantial impact on preparing at-risk children for K-12 education and success later in life; and

WHEREAS, studies have shown that intensive preschool services that use free medical care, social services, and dietary assistance for both parents and children from impoverished backgrounds yield a return on the investment by preventing future welfare, special education, and criminal justice costs; and

WHEREAS, Virginia's Preschool Initiative has been in effect since 1994; however, the General Assembly has not evaluated the manner in which it has been implemented in the several school

divisions, its effectiveness, or program costs or assessed its accountability measures to determine the need for modifications; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Joint Legislative Audit and Review Commission be directed to study the Virginia Preschool Initiative.

In conducting its study, the Joint Legislative Audit and Review Commission shall (i) review the statutory authorization for the Virginia Preschool Initiative and funding therefor; (ii) determine the costs of the program to the state and localities since its inception; (iii) assess the manner in which the program has been implemented in the several school divisions and the effectiveness of the current program in preparing at-risk four-year-olds for school readiness and success; (iv) evaluate the continued K-12 academic performance of students who participated in the current preschool program; (v) identify and assess the program's accountability measures to promote effective programs and efficient use of public funds; (vi) study the concept of the Universal Preschool or Pre-K, including which other states have adopted these programs and their success, if any; (vii) evaluate the additional costs, if any, of aligning components of the Virginia Preschool Initiative with the Quality Standards checklist recommended by the National Institute for Early Education Research; (viii) determine whether research has been conducted concerning the efficacy of preschool programs for children of middle- and upper-income parents and report the findings and recommendations; and (ix) consider such other related matters as the Commission deems appropriate to meet the objectives of this study.

Technical assistance shall be provided to the Joint Legislative Audit and Review Commission by the Department of Education and the staffs of the House Committee on Appropriations and the Senate Committee on Finance. To assist the Commission in its work, local school boards shall provide standardized test result data and other information and data to the Commission, and school board personnel shall meet with the staff of the Commission, upon request, to discuss program implementation and effectiveness so that the Commission may satisfy the requirements of this resolution. All agencies of the Commonwealth shall provide assistance to the Joint Legislative Audit and Review Commission for this study, upon request.

The Joint Legislative Audit and Review Commission shall complete its meetings by November 30, 2007, and the chairman shall submit to the Division of Legislative Automated Systems an executive summary of its findings and recommendations no later than the first day of the 2008 Regular Session of the General Assembly. The executive summary shall state whether the Joint Legislative Audit and Review Commission intends to submit to the General Assembly and the Governor a report of its findings and recommendations for publication as a House or Senate document. The executive summary and report shall be submitted as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

Appendix B

Research Activities and Methods

Key research activities and methods for this study included

- document review of academic literature and documents,
- review of program information from the Virginia Department of Education (DOE),
- interviews,
- site visits to a subset of localities to conduct classroom observations, with training in the use of an observation instrument,
- collection and analysis of test score outcome data, and
- surveys of kindergarten teachers and elementary school principals in schools with at least one Virginia Preschool Initiative (VPI) classroom, and surveys sent to school division superintendents.

DOCUMENT REVIEW OF NATIONAL STUDIES AND ACADEMIC LITERATURE

JLARC staff conducted literature reviews to help consider the questions of the benefits and costs of preschool for at-risk four-year-olds and also universal preschool. Staff also conducted literature reviews to determine the general usefulness of structural standards, which standards have been linked most directly with program quality, and which are supported by early childhood education organizations. Key reports and documents reviewed are listed in the bibliography in Appendix E.

REVIEW OF PROGRAM INFORMATION FROM DOE

JLARC staff reviewed key VPI program documents from DOE, including the *VPI Certification of Participation* and *Virginia's Foundation Blocks for Early Learning: Comprehensive Standards for Four-Year-Olds*. Staff also reviewed data collected by DOE on local VPI programs for FY 2007, which included local participation information, projected numbers of students, numbers of classrooms and VPI centers or schools, teacher education credentials, and curriculum used. In addition, JLARC staff reviewed the results of the *VPI Site Visit Instruments*, which are used by field consultants to

ensure programs are in compliance with State laws and guidelines, for the 2005-06 and 2006-07 school years.

INTERVIEWS

JLARC staff conducted in-person or telephone interviews with

- staff at DOE,
- early childhood education experts at the Georgetown University, Old Dominion University, the University of Virginia, Virginia Commonwealth University, and Virginia Tech,
- state preschool program contacts in Georgia, Iowa, Minnesota, North Carolina, Oklahoma, and Pennsylvania,
- a superintendent of a school district in California that has a kindergarten-readiness summer program before the kindergarten school year begins,
- staff from the Governor's Office,
- staff at John Tyler Community College, and
- staff at the Department of Social Services.

As feasible, JLARC staff also asked questions of VPI coordinators and some principals and classroom teachers during site visits. Staff discussed universal pre-K in Clarke County with the superintendent and other division personnel.

SITE VISITS TO A SUBSET OF LOCALITIES TO CONDUCT CLASSROOM OBSERVATIONS

JLARC staff observed selected VPI classrooms in a subset of school divisions. Due to the timing of the study and the academic calendar in most divisions, these site visits were made in 2007 between May 17 and 31 and between September 17 and October 2.

JLARC staff visited and observed some classrooms in 13 school divisions. Staff initially identified a need to visit 11 localities to provide the geographic and urban/rural/suburban representation that was desired. Another locality was added, to observe classrooms and conduct interviews in a locality in which the school division contracted with another entity to serve VPI children (Virginia Beach). In addition, Clarke County was visited and VPI classrooms observed because of the attention the county has received for the reported universal nature of its preschool programs.

Selection of Localities for Visitation

Virginia has eight educational regions, and the various school divisions and superintendents are each affiliated with one of these regions. The first objective used by JLARC staff in selecting school divisions for visitation was to ensure that at least one school division in each region was visited.

A second objective was to ensure both that the western part of the State (the westernmost education region, Region VII) was represented in the visited subset and to select a site which could be reached from Richmond within about a half day (around four hours) of travel time. To accomplish the maximum westward visit within this approximate travel time frame, Smyth County was selected.

A third objective of the team was to ensure that some cities, suburban counties, and rural counties were included in the subset. A similar fourth objective was to ensure that divisions with low and high local abilities to pay were included, and to ensure that divisions with both a low and high proportion of minority students were included.

A fourth objective was to ensure that selected divisions had at least two VPI classrooms, because JLARC staff intended to observe two classrooms in each visited division. There were regions in which several localities were eliminated as visitation sites because they only had one VPI classroom. A final objective was to ensure that at least some of the selected divisions did not have many more than two VPI classrooms in the division, so that by visiting two or three classrooms, JLARC staff would see all, or nearly all, of the VPI classrooms in those divisions.

Table 1 summarizes the considerations used in the site visit selection process, and the sites which were visited based on the criteria.

In Region 1, a suburban county could be selected with relatively strong ability to pay. Goochland and Henrico were given primary consideration. As Goochland had only one VPI classroom in 2006-07, VPI classrooms in two schools in Henrico County were selected for visitation.

Region II contains some large city school divisions with relatively low abilities to pay and substantial minority populations in the public schools. Four school divisions were noted to have numerous VPI classrooms in 2006-07 (about one-quarter of all VPI classrooms, although they constitute about eight to nine percent of statewide pupil membership). These divisions are Hampton, Newport News, Norfolk, and Portsmouth.

Table 1: Overview of Site Visit Selection

Education Region	Region / Division Type	Key Considerations	Localities Selected
I	Richmond suburban	Relatively high ability to pay, mix of schools with low and high minority populations	Henrico
II	Tidewater urban	Relatively low ability to pay, relatively high minority population in schools. Public-private partnership.	Norfolk Portsmouth Virginia Beach
III	Northern Neck	Small rural locality near coast.	Lancaster
IV	Northern Virginia	High ability to pay. Universal pre-K.	Arlington Clarke
V	Shenandoah Valley	Small city. Rural county.	Harrisonburg Rockbridge
VI	Roanoke area	Suburban county.	Roanoke County
VII	Southwest	Rural. Relatively low ability to pay, low minority population, travel distance within about four hours.	Smyth
VIII	Southside	Rural. Relatively low ability to pay, schools with high minority populations.	Brunswick Greensville

Source: JLARC staff.

Norfolk and Portsmouth were selected for visitation. In addition, Virginia Beach was identified for visitation because the preschool classrooms are operated on a contracted public-private partnership basis.

Region III offered an opportunity to visit some VPI classes in a small rural school division in the Northern Neck. Lancaster County and King and Queen County were the divisions in the region with at least two VPI classes. Lancaster County was chosen because King and Queen County was seen as having some similar characteristics and challenges as some divisions which would be visited in Region VIII (Southside Virginia).

Region IV contains some suburban divisions with relatively high abilities to pay. Arlington, Fairfax, and Prince William were considered for visitation. Although the Fairfax school division is not the lead agency for the VPI program in Fairfax, it requested that before conducting research in the division, JLARC staff sign a research agreement with conditions that were not considered acceptable by staff for a legislatively-required study. Also, Prince William's VPI program was new in 2006-07, and for study purposes, it appeared to be more important to observe more long-standing VPI programs. Therefore, Arlington was selected for visitation and also Clarke County, for reasons stated previously.

Region V contains some small cities and rural counties in the Shenandoah Valley. Harrisonburg City was chosen because the locality has a high proportion of students with limited English profi-

ciency, and so -- as with Arlington County -- its classrooms provide a chance to see how VPI is delivered to that population. In addition, Rockbridge County was selected as a rural county in Region V with more than two classrooms.

In Region VI, the objective was to select a relatively large urban or suburban school division in the Roanoke Valley area. Roanoke County was chosen for visitation. For Region VII, Southwest Virginia, the selection of Smyth County is discussed above.

In Region VIII, there are two localities with majority black populations and two or more VPI classrooms, Brunswick and Greensville. These localities were visited to observe VPI in operation in low ability-to-pay, high minority, rural localities. Brunswick County was visited in May, and Greensville was visited in early October.

Classroom Visitation and Observation

In the divisions visited, JLARC staff observed 35 classrooms in 26 schools, using the University of Virginia's "CLASS" instrument (Classroom Assessment Scoring System). Details about the educational domains and dimensions that are part of CLASS are contained in Chapter 4 and Appendix C of this report. Before visiting schools and applying the instrument, JLARC staff received training in the use of the CLASS rating instrument and passed a rater reliability test.

Analysis of CLASS Scores

Data resulting from the classroom observation work was analyzed through a series of database (Microsoft ACCESS) queries. An online calculator was used to test for statistically significant differences in means between different bivariate groupings of the observation data. The unit of analysis in this work was the set of scores from each completed observation rating sheet.

COLLECTION AND ANALYSIS OF TEST SCORE OUTCOMES

Test scores were analyzed at the pre-kindergarten, kindergarten, third grade, and fifth grade levels. For pre-kindergartners and kindergartners, the Phonological Awareness and Literacy Screening (PALS) tests were used to assess growth in literacy during the preschool year as well as preparedness for kindergarten. The Standards of Learning (SOL) English and math tests were used to examine longer-term (third grade and fifth grade) academic performance of students. Regression analysis was the primary research method used to analyze these test scores. The regression analyses, and their results, are discussed in more detail in Appendix D.

SURVEYS OF KINDERGARTEN TEACHERS, ELEMENTARY SCHOOL PRINCIPALS, AND SCHOOL DIVISIONS

JLARC staff sent a survey to 1,764 kindergarten teachers to seek their perspective regarding their school's at-risk pre-K program and its program graduates in their classrooms. Staff received 618 surveys from the teachers, or a 35 percent response rate. Of the 618 responses, 495 reported that they had at least one at-risk student in the 2006-07 school year that attended pre-K at their school. The other 123 teachers did not, and were screened out from completing the survey. This was done so that respondents would be kindergarten teachers with recent experience with at-risk students coming from the pre-K program.

In addition, JLARC staff sent a survey to 471 elementary school principals who were thought to be at schools with at least one VPI classroom. Of the 174 surveys returned to JLARC (a 37 percent response rate), 160 reported that they did have at least one VPI classroom and completed the survey.

In addition, JLARC staff surveyed 84 school divisions which are the lead agency for their locality's VPI and which have more than one year of experience with the program. All of these divisions responded to the survey (100 percent response rate). JLARC staff also surveyed ten divisions which do not participate in VPI and received eight responses, for an 80 percent response rate.

The survey responses of kindergarten teachers, elementary school principals, and school divisions were analyzed using Microsoft ACCESS queries.

Appendix C

Classroom Observation Results for Ten CLASS Dimensions

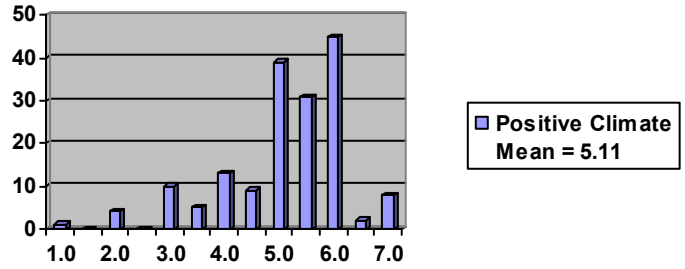
In implementing observations of VPI classes, JLARC staff used the Classroom Assessment Scoring System (CLASS). CLASS consists of three broad quality domains (emotional support, classroom organization, and instructional support) which encompass ten dimensions of classroom quality. CLASS also consists of a student outcome measure, which is the level of student engagement.

Chapter 3 of this report displays detailed results from JLARC staff observations of VPI classrooms in the three broad domains plus the student engagement measure. However, similarly detailed information for the ten dimensions that constitute the three domains is not provided in the body of report. This appendix provides figures displaying the results in each of the ten dimensions. With two JLARC staff independently completing the scoring sheets during classroom visits, 167 observation ratings were made reflecting performance in 33 classrooms in 26 schools. Scores for each dimension range from 1 to 7. For all dimensions but "negative climate," low scores are 1 and 2, "mid" scores are 3, 4, and 5, and high scores are 6 and 7. For negative climate, a score of 1 is best, 7 worst.

POSITIVE CLIMATE

The CLASS manual states that the positive climate rating "reflects the overall emotional tone of the classroom and the connection between teachers and students." The warmth of the teacher's interactions with students and also the interactions among peers are considered in scoring this dimension. Ratings from the classroom visits cluster around 5 to 6 out of a possible 7, indicating that positive environments were prevalent during observation periods at the visited VPI classrooms.

Figure 1: Positive Climate—Number of Observation Ratings by CLASS Score

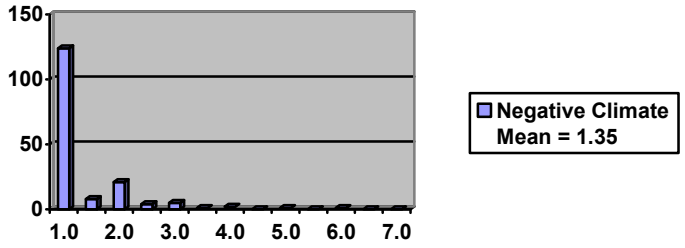


Source: JLARC staff site visit observations, May and September-October 2007.

NEGATIVE CLIMATE

This rating reflects the overall level of negativity (for example, anger, sarcasm, irritability, aggression, and bullying) that is expressed in the classroom by teachers or by students. On this dimension, a higher score indicates more negativity; thus, a low score on this dimension is desirable. Negativity levels were very low in the VPI classrooms visited, as indicated by the mean rating of 1.35.

Figure 2: Negative Climate—Number of Observation Ratings by CLASS Score



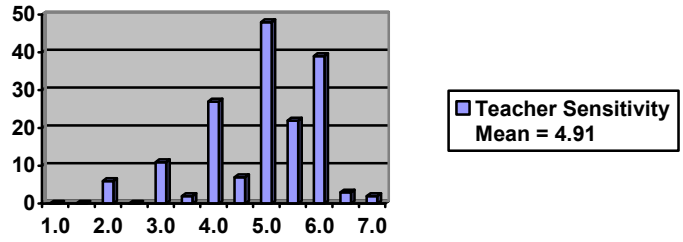
Source: JLARC staff site visit observations, May and September-October 2007.

TEACHER SENSITIVITY

The CLASS manual describes this category as encompassing the responsiveness of the teacher "to students' needs" and the teacher's awareness of the students' level of academic and social

functioning. Scores on this dimension cluster around 5 and 6, indicating that teacher sensitivity was prevalent during observations periods in the VPI classrooms visited. However, with a score of 5 having the greatest frequency, and with a mean score of 4.91, there appears to be some room for improvement in this dimension.

Figure 3: Teacher Sensitivity—Number of Observation Ratings by CLASS Score

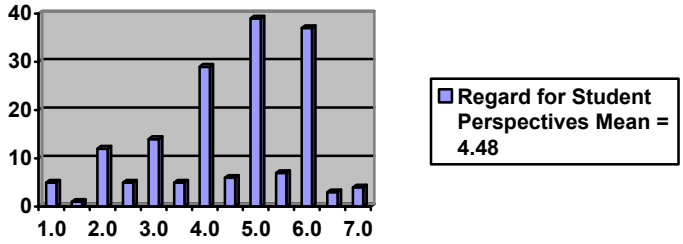


Source: JLARC staff site visit observations, May and September-October 2007.

REGARD FOR STUDENT PERSPECTIVES

The CLASS manual indicates that this dimension "captures the degree to which the teacher's interactions with students and classroom activities place an emphasis on students' interests, motivations, and points of view." Higher scores indicate greater teacher flexibility and "respect for student autonomy to participate in and initiate activities." In practice, scores on this dimension were impacted by the instructional format being observed. For the center time format, the mean score was 5.64 (above mid-level), compared to a 3.97 for other formats and a 4.48 overall.

Figure 4: Student Perspectives—Number of Observation Ratings by CLASS Score

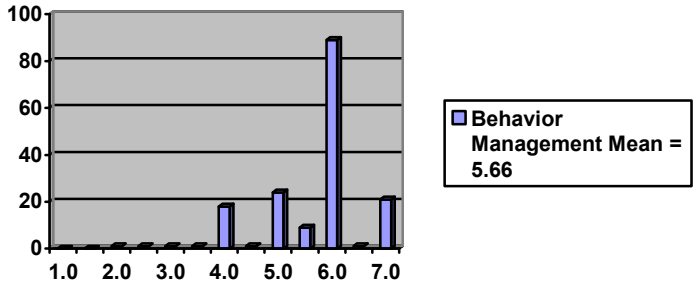


Source: JLARC staff site visit observations, May and September-October 2007.

BEHAVIOR MANAGEMENT

Behavior management is defined in the CLASS manual as covering "the teacher's ability to use effective methods to prevent and redirect misbehavior." As indicated by the scores shown in Figure 5, high levels of behavior management performance were frequently seen during observation periods, but improvements could be made in some visited classrooms.

Figure 5: Behavior Management—Number of Observation Ratings by CLASS Score

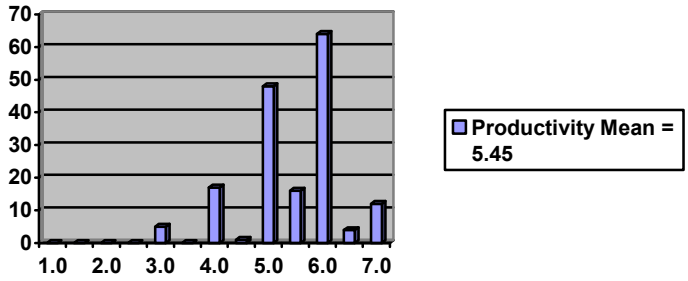


Source: JLARC staff site visit observations, May and September-October 2007.

PRODUCTIVITY

This dimension, the CLASS manual indicates, "considers how well the teacher manages instructional time and routines so that students have the opportunity to learn." Observed performance on this dimension was good, with scores of 6 and above being prevalent, and with the overall mean at 5.45.

Figure 6: Productivity Rating—Number of Observation Ratings by CLASS Score

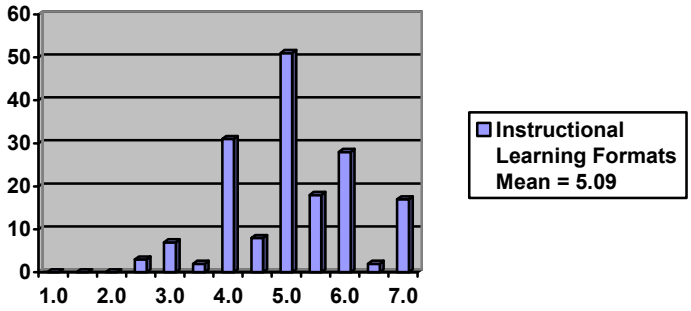


Source: JLARC staff site visit observations, May and September-October 2007.

INSTRUCTIONAL LEARNING FORMATS

This dimension focuses on the intentional efforts of the teacher to "maximize students' engagement and ability to learn." Strong performance in this area was seen during some observation periods, but the number of scores in the 4 to 5 range and the overall mean of 5.09 indicates room for improvement on the dimension in some visited classrooms.

Figure 7: Instructional Learning Formats—Number of Observation Ratings by CLASS Score

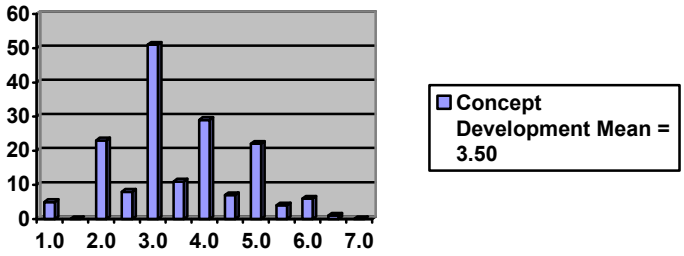


Source: JLARC staff site visit observations, May and September-October 2007.

CONCEPT DEVELOPMENT

This dimension, the CLASS manual indicates, "measures the teachers' use of instructional discussions and activities to promote students' higher order thinking skills and cognition in contrast to a focus on rote instruction." The extent to which observed teachers brought in higher order concepts and thinking into the activities planned for the at-risk four-year-olds was somewhat limited, as indicated by the mean score of 3.50 for this dimension (performance toward the lower end of the "mid" level).

Figure 8: Concept Development—Number of Observation Ratings by CLASS Score

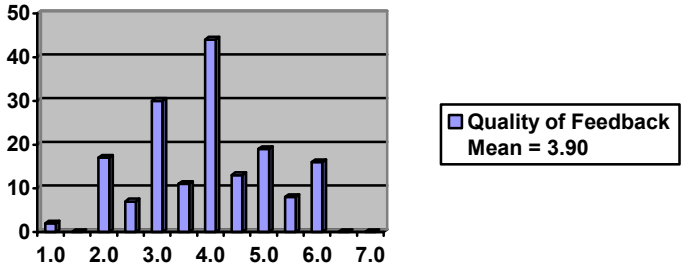


Source: JLARC staff site visit observations, May and September-October 2007.

QUALITY OF FEEDBACK

This dimension "assesses the degree to which the teacher's provision of feedback is focused on expanding learning and understanding…" Observed teachers were diligent in giving children some form of feedback. However, more often than not, feedback was in the form of "yes" or "no" or praise or correction. The mid-level mean score of 3.90 in this category reflects the fact that more advanced feedback was seen less frequently.

Figure 9: Quality of Feedback—Number of Observation Ratings by CLASS Score



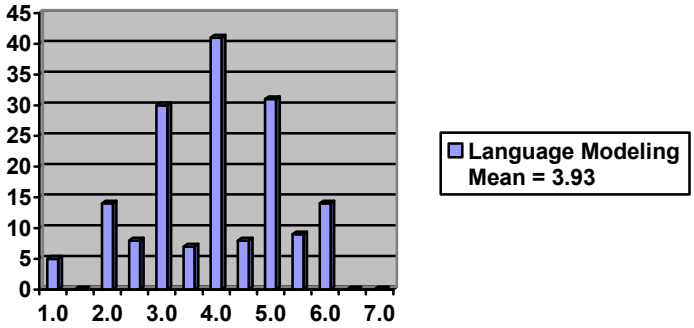
Source: JLARC staff site visit observations, May and September-October 2007.

LANGUAGE MODELING

The tenth class dimension (within the three broad domains) is language modeling, which "captures the quality and amount of teachers' use of language-stimulation and language-facilitation tech-

niques during individual, small-group, and large-group interactions with students." Performance during the observation periods was typically at a "mid" level, as indicated by the prevalence of scores between 3 and 5 and by the 3.93 mean score. Efforts were made to draw students into speaking. However, other possible goals, such as keeping the pace of classroom activity moving or interacting with more children, seemed to limit the extent to which language modeling was used, at least on a one-on-one basis.

Figure 10: Language Modeling—Number of Observation Ratings by CLASS Score



Source: JLARC staff site visit observations, May and September-October 2007.

Appendix D

Regression Analyses of Test Scores

Regression analysis was used to examine Phonological Awareness and Literacy Screening (PALS) and Standards of Learning (SOL) test scores. This appendix provides additional detail on how the regression analyses were done and more detailed results.

ESTIMATION OF PREDICTED PALS SCORES FOR PRE-KINDERGARTNERS AND KINDERGARTNERS

Ordinary least squares regression analysis was used to predict fall 2005 and spring 2006 PALS-PreK scores as well as fall 2006 PALS-K scores. Regression analysis is a widely accepted technique for assessing the extent to which various factors, called independent variables, help to explain the magnitude of a variable that is of interest, known as the dependent variable. In this case, the dependent variable is the PALS test score. The independent variables are those factors that appear to be associated with differences in the dependent variable, based on literature reviews and prior studies. The factors chosen as independent variables for this analysis were

- student age at time of test – measured in days
- student race/ethnicity – students were identified as Asian, black, Hispanic, white, or other race/ethnicity
- student gender
- poverty – estimated by the percent of students in the school that participated in the State's free or reduced lunch program (FRLP). For those students in schools for which the data was unavailable, the division average was used instead. Student-level poverty data was unavailable.
- parents' educational attainment – estimated by the percent of adults in the area that received at least a bachelor's degree. The percent of adults who received a bachelor's degree was calculated by zip code, and students in schools within the zip code were assigned that percentage. For schools in which the zip code data did not exist, the division average was used instead. Data on educational attainment of the parents of individual students did not exist.
- *special services* – Indicator used to determine if the preschool or kindergarten student was identified with one of the follow-

ing challenges (identified by teacher administering PALS test):

- Learning disabled
- Mental retardation
- Developmental delay
- English as a second language
- Speech and language services required
- Other special service received

Regression analysis produces an equation which best summarizes how the independent variables predict increases or decreases in the dependent variable. For each independent variable, a coefficient is produced that indicates how much the dependent variable may increase or decrease in association with changes in the independent variable. A coefficient is also produced for the intercept, which is the starting point for estimation of the dependent variable. The coefficients of the independent variables may also be standardized to show the relative strength of each independent variable in the model. The regression model also contains the standard error for each coefficient as well as a measure of significance of the independent variable (the t-value). The t-value is simply the coefficient divided by the standard error. Higher absolute values of the t-value indicate greater significance, as there is a smaller probability that the positive or negative coefficient is actually equal to zero (which would indicate no association between the independent and dependent variables). The probability that the coefficient is due to random error is also produced by the regression analysis. Probability values closer to zero indicate high significance, while values closer to 1 indicate low significance. Finally, the regression analysis produces a measure indicating the strength of the model in predicting changes in the dependent variable. This measure (termed the adjusted R^2) is the percentage of variation in the dependent variable that is explained by the independent variables. An adjusted R^2 value that is close to 1 indicates that nearly all of the variation is explained by the model, while an adjusted R^2 value that is close to zero indicates that very little variation is explained.

Predicting PALS-PreK Scores

Regression analysis was used to predict the increase in PALS-PreK scores that was due to children being older at the time the spring test was administered. To accomplish this, predicted fall PALS-PreK scores were estimated using a regression model containing the factors listed above. The coefficients were then used in an equation to calculate the predicted fall and spring scores for each student. In predicting the spring scores, all the factors have the same value as in the fall except for the students' age. There-

fore, the difference between the two predicted scores is the result of students being older at the time the spring test was administered. By estimating the expected difference, the effectiveness of the preschool programs could then be determined by calculating the difference between mean actual improvement and mean expected improvement. The regression results are shown below.

Regression Analysis of Fall 2005 PALS-PreK Scores

Variable	Coefficient	t-Value	Signicance Level of Coefficient	Standardized Coefficient
Intercept	-22.83	-10.76	<.0001	0
Student age	0.03	27.82	<.0001	.24
Black	-1.86	-5.56	<.0001	-.05
Hispanic	-10.25	-16.62	<.0001	-.15
Asian	3.14	2.72	.0066	.02
Other race	-.69	-.87	.3854	-.01
Female	3.76	12.98	<.0001	.11
Adult educational attainment	.01	.97	.3336	.01
% free lunch program	-3.71	-4.27	<.0001	-.04
Special services	-6.74	-16.50	<.0001	-.15
Adjusted R^2	.1195			
Number of Observations	12,303			

Source: JLARC staff analysis of data provided by the University of Virginia, the Virginia Department of Education, and the U.S. Census Bureau.

Predicting PALS-K Scores

Regression analysis was used to predict PALS-K scores for students according to their race/ethnicity. Five models were developed to predict scores for each of the race/ethnicity groups. The predicted PALS-K scores were then calculated for all students based on the coefficients, and the mean predicted scores were calculated for VPI graduates and other kindergartners within each race/ethnicity. The mean predicted scores were then compared to the mean actual scores to assess the effect of VPI on the preparedness of kindergartners. The regression models are shown below.

The mean predicted and actual PALS-K scores were also calculated for each of the school divisions. As noted in Chapter 6, these division averages must be viewed with caution, as they may not represent all VPI graduates in the division who were enrolled in kindergarten in fall 2006. Only those students who were administered the PALS-PreK test during the prior year are counted in the division averages, and in some cases, these students represent a very small proportion of all VPI students in the division. Further-

Regression Analysis of Fall 2006 PALS-K Scores

Variable	Coefficient	t-Value	Signicance Level of Coefficient	Standardized coefficient
Asian Students				
Intercept	14.22	2.24	.0248	0
Female	3.99	5.32	<.0001	.08
Student age	.69	7.51	<.0001	.11
Adult educational attainment	.16	7.05	<.0001	.12
% free lunch program	-.11	-4.99	<.0001	-.09
Special services	-11.02	-12.56	<.0001	-.19
Adjusted R^2	9%			
Number of Observations	4,082			
Black Students				
Intercept	-4.02	-1.68	.0920	0
Female	4.47	13.66	<.0001	.09
Student age	.88	25.49	<.0001	.17
Adult educational attainment	.01	1.17	.2438	.01
% free lunch program	-.05	-6.11	<.0001	-.05
Special services	-11.52	-25.45	<.0001	-.17
Adjusted R^2	6%			
Number of Observations	21,377			
Hispanic Students				
Intercept	-23.79	-5.89	<.0001	0
Female	2.10	3.92	<.0001	.04
Student age	.99	16.98	<.0001	.18
Adult educational attainment	.00	.24	.8071	.00
% free lunch program	-.03	-1.85	.0636	-.02
Special services	-10.00	-18.09	<.0001	-.20
Adjusted R^2	7%			
Number of Observations	8,415			
White Students				
Intercept	-9.86	-6.03	<.0001	0
Female	4.00	19.29	<.0001	.08
Student age	1.00	42.09	<.0001	.18
Adult educational attainment	.19	28.32	<.0001	.15
% free lunch program	-.08	-13.30	<.0001	-.07
Special services	-13.22	-42.83	<.0001	-.19
Adjusted R^2	12%			
Number of Observations	47,636			
Other Race/Ethnicity Students				
Intercept	-13.40	-2.25	.0246	0
Female	3.54	4.83	<.0001	.07
Student age	1.03	11.93	<.0001	.17
Adult educational attainment	.15	6.41	<.0001	.11
% free lunch program	-.10	-5.16	<.0001	-.09
Special services	-13.03	-12.70	<.0001	-.18
Adjusted R^2	10%			
Number of Observations	4,378			

Source: Analysis of data provided by the University of Virginia, the Virginia Department of Education, and the U.S. Census Bureau.

more, the division averages for VPI graduates may include students who attended VPI classrooms in other divisions,and thus these results may not be a true indicator of the success of the local VPI programs. To protect the privacy of students, averages for those divisions with fewer than ten VPI students are omitted.

Predicted and Actual PALS-K Scores by School Division

	VPI Graduates				Other Kindergartners			
Division	**N**	**Predicted**	**Actual**	**Diff.**	**N**	**Predicted**	**Actual**	**Diff.**
Accomack County	79	51.6	53.4	1.8	346	50.6	49.2	-1.5
Albemarle County	91	52.8	56.3	3.5	827	60.3	64.6	4.3
Alleghany County	24	55.3	54.4	-0.9	185	54.6	61.1	6.5
Amelia County	18	50.0	50.8	0.8	158	55.4	45.9	-9.5
Amherst County	56	49.3	67.2	17.9	244	52.0	54.7	2.7
Appomattox County	45	49.8	64.7	14.5	123	53.9	57.8	3.9
Arlington County	271	42.2	58.0	15.8	1,335	59.7	65.9	6.2
Augusta County	105	52.2	43.8	-8.4	655	56.6	49.1	-7.5
Bath County					43	53.3	56.4	3.1
Bedford County	81	53.3	63.4	10.0	715	58.4	57.9	-0.5
Bland County					73	53.7	45.7	-8.0
Botetourt County	4				362	59.8	57.7	-2.1
Brunswick County	56	51.6	50.1	-1.4	125	53.2	41.7	-11.5
Buchanan County	62	50.9	61.9	11.0	206	51.2	51.3	0.0
Buckingham County	63	53.1	59.5	6.4	65	53.6	43.5	-10.1
Campbell County	119	53.8	52.1	-1.7	578	57.1	54.4	-2.7
Caroline County	34	52.5	63.9	11.5	275	52.1	55.1	3.1
Carroll County	71	51.5	56.0	4.5	248	54.0	47.7	-6.3
Charles City County	28	55.1	71.7	16.6	24	55.0	61.0	6.0
Charlotte County	1				141	53.6	59.8	6.2
Chesterfield County	57	54.6	63.6	9.1	4,119	59.2	55.1	-4.1
Clarke County	41	54.4	59.6	5.3	117	59.1	66.4	7.3
Craig County	1				71	53.0	47.2	-5.8
Culpeper County	58	51.0	62.6	11.5	513	50.9	57.1	6.2
Cumberland County	72	50.9	56.6	5.7	32	50.8	42.3	-8.6
Dickenson County	1				167	52.3	48.4	-3.9
Dinwiddie County	35	53.2	51.1	-2.1	264	55.1	50.5	-4.7
Essex County	16	54.2	53.6	-0.6	121	52.3	40.5	-11.8
Fairfax County	27	46.4	46.2	-0.2	10,921	59.3	58.8	-0.6
Fauquier County	3				823	57.6	57.9	0.3
Floyd County	15	53.8	63.9	10.1	136	54.9	52.3	-2.6
Fluvanna County	41	53.5	48.8	-4.8	231	57.9	51.4	-6.5
Franklin County	193	53.3	62.4	9.1	421	52.7	56.7	3.9
Frederick County	3				871	57.3	47.1	-10.4
Giles County					238	57.5	45.0	-12.6
Gloucester County					386	55.8	55.5	-0.3
Goochland County	9				201	58.2	62.1	4.0
Grayson County	15	50.0	57.5	7.6	118	51.8	51.0	-0.8
Greene County	32	51.3	69.1	17.7	174	55.4	57.2	1.8
Greensville County	50	51.6	55.9	4.3	165	52.1	43.9	-8.2
Halifax County	136	51.3	62.8	11.5	295	51.0	53.4	2.4
Hanover County	3				1,351	60.8	62.7	2.0

Henrico County	118	50.8	56.3	5.5	3,394	58.9	58.1	-0.8
Henry County	171	50.0	54.5	4.5	416	50.6	49.1	-1.5
Highland County					17	57.3	70.2	12.9
Isle of Wight County	62	53.5	61.0	7.4	299	55.6	57.0	1.5
King George County	3				265	58.2	53.8	-4.4
King and Queen County	21	53.0	51.4	-1.6	27	53.4	38.2	-15.1
King William County	18	55.8	60.2	4.4	139	55.3	56.0	0.7
Lancaster County	26	53.4	58.2	4.7	79	53.5	51.0	-2.5
Lee County	1				290	52.9	57.4	4.5
Loudoun County	2				3,946	61.8	64.9	3.0
Louisa County	41	52.2	46.1	-6.1	322	55.8	52.9	-2.9
Lunenburg County	51	51.0	55.0	4.0	87	52.0	50.9	-1.2
Madison County	2				127	51.3	59.3	8.0
Mathews County	1				94	56.5	50.3	-6.1
Mecklenburg County	97	51.8	62.6	10.9	241	54.2	54.4	0.1
Middlesex County					97	56.5	54.3	-2.2
Montgomery County	141	54.9	52.7	-2.2	666	59.0	56.7	-2.3
Nelson County	19	53.3	51.1	-2.2	131	54.2	50.1	-4.0
New Kent County	2				168	53.9	50.2	-3.7
Northampton County	66	49.1	52.3	3.1	103	50.0	47.4	-2.6
Northumberland County	54	53.4	54.4	1.1	62	55.2	58.1	2.9
Nottoway County	65	53.8	60.3	6.5	84	53.5	46.4	-7.1
Orange County					343	55.6	56.4	0.8
Page County	69	54.3	63.0	8.7	200	55.4	50.0	-5.4
Patrick County	13	53.1	71.6	18.5	160	52.7	56.4	3.7
Pittsylvania County	93	49.4	52.3	2.9	606	51.0	56.6	5.6
Powhatan County	1				337	59.1	55.9	-3.2
Prince Edward County	92	52.3	61.5	9.3	111	53.2	48.9	-4.3
Prince George County	76	54.8	55.3	0.4	377	56.6	52.2	-4.4
Prince William County	13	45.8	61.8	16.0	5,139	53.9	49.7	-4.2
Pulaski County	63	54.0	51.0	-3.0	327	53.1	43.7	-9.4
Rappahannock County					69	60.3	54.1	-6.2
Richmond County	13	51.1	38.5	-12.6	75	55.0	53.1	-2.0
Roanoke County	113	56.1	53.0	-3.1	896	60.9	60.8	-0.1
Rockbridge County	38	55.3	55.4	0.1	145	57.2	45.5	-11.8
Rockingham County	200	50.3	53.3	2.9	716	54.8	52.7	-2.1
Russell County	117	52.4	67.9	15.6	201	53.9	53.7	0.2
Scott County					289	54.6	57.0	2.5
Shenandoah County	52	50.1	49.1	-0.9	404	56.4	49.2	-7.2
Smyth County	127	50.1	66.7	16.6	255	50.2	53.7	3.5
Southampton County	63	52.4	59.1	6.7	141	54.9	52.4	-2.5
Spotsylvania County	58	55.4	53.0	-2.4	1,637	56.0	51.2	-4.8
Stafford County	2				1,721	58.1	54.8	-3.5
Surry County	53	52.9	69.7	16.8	28	56.2	50.3	-5.9
Sussex County					83	44.3	42.4	-1.9
Tazewell County	95	53.9	73.0	19.1	397	55.0	51.4	-3.6
Warren County	21	53.5	47.4	-6.1	355	57.1	47.5	-9.6
Washington County	66	53.9	71.1	17.2	471	53.2	69.2	15.7
Westmoreland County	34	52.4	54.1	1.7	92	53.4	51.4	-2.0
Wise County	98	49.0	59.7	10.7	470	50.6	52.7	2.1
Wythe County	79	53.9	59.8	5.9	277	56.9	45.8	-11.1
York County	4				754	61.0	62.6	1.7
Alexandria City	50	49.0	50.4	1.4	983	51.1	52.4	1.3
Bristol City	2				177	54.4	56.9	2.5
Buena Vista City					131	57.7	54.1	-3.6
Charlottesville City	98	51.8	54.5	2.7	212	56.1	54.8	-1.3

Colonial Heights City	2				221	56.9	52.1	-4.8
Covington City	13	54.5	38.5	-16.0	67	54.9	38.9	-16.0
Danville City	97	44.5	55.2	10.7	419	46.0	43.8	-2.2
Falls Church City					127	55.0	67.7	12.7
Fredericksburg City	13	47.7	59.8	12.2	215	50.5	57.3	6.7
Galax City					105	49.2	49.0	-0.2
Hampton City	355	52.0	60.5	8.5	1,120	53.6	57.9	4.3
Harrisonburg City	15	38.9	45.6	6.7	354	45.2	44.1	-1.1
Hopewell City	34	51.6	47.5	-4.1	298	52.2	46.4	-5.8
Lynchburg City	173	52.4	60.0	7.5	509	55.5	50.7	-4.8
Martinsville City	35	50.2	68.8	18.6	125	52.7	54.5	1.7
Newport News City	22	53.2	49.8	-3.4	2,432	53.2	62.5	9.4
Norfolk City	1,286	52.1	59.2	7.1	1,720	54.6	49.0	-5.7
Norton City					59	52.4	55.7	3.3
Petersburg City	132	50.8	57.1	6.3	242	50.9	46.6	-4.3
Portsmouth City	369	53.9	70.4	16.8	867	54.1	52.4	-1.3
Radford City	1				108	58.7	52.9	-5.9
Richmond City	650	52.4	61.5	9.1	1,386	51.5	45.9	-5.6
Roanoke City	302	52.2	60.2	7.9	788	52.6	50.4	-2.3
Staunton City	29	52.4	43.1	-9.2	188	55.6	43.2	-12.4
Suffolk City	165	52.3	58.7	6.1	862	54.9	59.2	4.6
Virginia Beach City	600	52.7	53.6	0.8	4,201	56.8	56.4	-0.6
Waynesboro City	23	58.0	76.4	18.4	138	55.4	59.8	4.3
Williamsburg/James City	100	58.0	59.6	1.5	618	60.9	60.3	-0.6
Winchester City					313	53.6	47.3	-6.3
Franklin City	2				99	53.6	57.9	4.3
Chesapeake City	213	53.8	58.7	4.8	2,193	55.8	58.7	2.8
Lexington City	1				56	61.5	71.6	10.2
Salem City	5				213	59.2	57.1	-2.1
Poquoson City	3				148	57.0	66.5	9.5
Manassas City					514	48.0	38.4	-9.6
Manassas Park City					255	46.5	42.2	-4.3
Colonial Beach	1				40	50.4	66.7	16.2
West Point	1				61	60.3	73.2	12.9

Note: Mean predicted and actual PALS-K scores of school divisions with ten or fewer VPI graduates were omitted to protect the privacy of students.

Source: Analysis of data provided by the University of Virginia, the Virginia Department of Education, and the U.S. Census Bureau.

ESTIMATION OF THE IMPACT OF VPI ON THIRD AND FIFTH GRADE SOL SCORES

Because the State did not have the ability to track individual students from preschool through the third or fifth grade level, the analysis of the longer-term effects of VPI on school performance was conducted at the school division level. This division-level analysis involved creating a VPI participation statistic that characterized the extent to which at-risk students were served by the VPI program. The VPI participation statistic for third grade students was based on the number of VPI students enrolled during the 2001-02 school year, the percentage of student in the division that were part of the State's free lunch program in 2005-06, and

third grade enrollment in 2005-06. Similarly, the VPI participation statistic for fifth grade students was based the number of VPI students enrolled during the 1999-00 school year and the percentage of student in the division that were part of the free lunch program in 2005-06, and fifth grade enrollment in 2005-06. The percent of eligible students served by VPI was then estimated using the following equations:

$$\text{\% third grade students served by VPI} = \frac{\text{2001-02 VPI Enrollment}}{(\text{\% students eligible for free lunch}) \text{ X } (\text{third grade enrollment in 2005-06})}$$

$$\text{\% fifth grade students served by VPI} = \frac{\text{1999-00 VPI Enrollment}}{(\text{\% students eligible for free lunch}) \text{ X } (\text{fifth grade enrollment in 2005-06})}$$

If the VPI program were to have an effect on SOL scores, then school divisions with a higher proportion of their at-risk students served by VPI would be expected to perform better than other divisions when controlling for factors such as race, poverty, and the educational attainment of students' parents. These factors were all shown to be highly correlated with SOL average scaled scores in the 2003 JLARC study of school performance (*Review of Factors and Practices Associated with School Performance in Virginia*).

To evaluate the impact of VPI on SOL scores, average scores of divisions with a high proportion of their at-risk students served by VPI were compared to divisions with a low proportion of their at-risk students served by VPI. This means test is a simple measure of comparing the two groups but does not control for other factors. Regression analysis was used to control for the other factors noted above.

The comparison of SOL average scores and pass rates showed little variation between the divisions with a high proportion of at-risk students served, a low proportion served, and those with none served by VPI. The table below shows the results of the three groups for third and fifth grade SOL scores. In fact, there was almost no difference across the three groups for the third grade average scores and pass rates. In comparing fifth grade SOL scores, divisions with a high proportion of their at-risk students served by VPI performed slightly better than divisions with a low proportion served across all four SOL measures. Those divisions with a high proportion served by VPI also performed slightly better on the

math SOL measures than localities with no students served (these divisions generally had lower proportions of students receiving free lunch and fewer minority students).

Average SOL Scores by Proportion of At-Risk Students Served by VPI (2006)

% At-Risk Served by VPI	Number of Divisions	English Average Scaled Score	English Pass Rate	Math Average Scaled Score	Math Pass Rate
		Third Grade			
High	34	465	83	488	88
Low	34	465	82	487	89
None	64	467	82	489	89
		Fifth Grade			
High	33	477	87	482	84
Low	34	471	83	468	79
None	65	478	85	474	80

Source: Analysis of data provided by the Virginia Department of Education.

The comparison of average SOL scores and pass rates shown in the table do not account for differences in the demographics of the divisions that might affect SOL performance. The following table shows the percentages of black students, students receiving a free or reduced-price lunch (FRPL), and adults in the community that have achieved a bachelor's degree or higher. As noted above, these factors were all shown to have an effect on SOL scores in JLARC's previous school performance study. Divisions with no students served by VPI had on average fewer black students and slightly lower percentages of students in the FRPL program. Divisions with a low percentage of students served by VPI (but more than zero) had a higher percentage of black students and students receiving FRPL, which might explain the lower SOL scores relative to the other groups.

Regression analysis was then used to control for the factors of race (represented by the percent of students who were black), poverty (represented by the percent of students receiving FRPL), and the educational attainment of parents (represented by the percent of adults in the area with at least a bachelor's degree). These factors, along with the percent of at-risk students served by VPI, were used in the models to predict the English and math SOL average scores and pass rates. The goal of the analysis was to determine if the percent of at-risk students served by VPI had an independent effect on SOL scores or pass rates.

Demographic Characteristics of School Divisions by Proportion of At-Risk Students Served by VPI (2006)

% At-Risk Served by VPI	Number of Divisions	% Black Students	% Students Receiving FRPL Program	% of Adults With at Least BA
		Third Grade		
High	34	27%	44%	23%
Low	34	33	50	17
None	64	19	41	19
		Fifth Grade		
High	33	29%	45%	21%
Low	34	34	54	17
None	65	19	38	20

Source: Analysis of data provided by the Virginia Department of Education and the U.S. Census Bureau.

Regression analysis was used to predict third and fifth grade average SOL scores and pass rates for the school divisions. The purpose of the analysis was to determine if the VPI program had an independent effect on average SOL scores and pass rates of school divisions. The regression models controlled for the factors of race (represented by the percent of students who were black, poverty (represented by the percent of students receiving FRPL), and the educational attainment of parents (represented by the percent of adults with at least a bachelor's degree). The percent of at-risk students served by VPI was added to the model as an independent variable to determine if this variable has a significant independent effect on average SOL scores or pass rates. If the significance level of the coefficient is less than five percent, then there would be a 95 percent confidence level that the variable is associated with the test scores.

The percent of at-risk students served by VPI was not a significant factor in any of the models predicting third grade SOL average scores or pass rates. The percent served by VPI was a significant positive factor in predicting both English and math fifth grade SOL pass rates, but the models did not explain much of the variation in pass rates across school divisions. The regression models are shown on the following pages. There were 132 observations (school divisions) in each of the models.

Regression Analysis of Third Grade SOL Scores

Variable	Coefficient	t-Value	Significance Level of Coefficient	Standardized Coefficient
English Average Scaled Score				
Intercept	475.05	97.17	<.0001	0
% Black	-32.36	-5.26	<.0001	-.45
% FRPL	-14.75	-1.68	.0954	-.16
% Adults with bachelor's degree	29.69	2.53	.0126	.20
% at-risk served by VPI	-.29	-.07	.9478	-.00
Adjusted R^2	38%			
English Pass Rate				
Intercept	89.71	40.92	<.0001	0
% Black	-12.93	-4.68	<.0001	-.42
% FRPL	-9.58	-2.44	.0163	-.25
% Adults with bachelor's degree	-2.10	-.40	.6901	-.03
% at-risk served by VPI	2.47	1.25	.2142	.09
Adjusted R^2	32%			
Math Average Scaled Score				
Intercept	496.50	99.19	<.0001	0
% Black	-43.21	-6.86	<.0001	-.56
% FRPL	-10.03	-1.12	.2663	-.10
% Adults with bachelor's degree	32.89	2.74	.0071	.21
% at-risk served by VPI	2.91	.64	.5208	.04
Adjusted R^2	45%			
Math Pass Rate				
Intercept	92.25	50.22	<.0001	0
% Black	-12.77	-5.52	<.0001	-.50
% FRPL	-3.35	-1.02	.3117	-.10
% Adults with bachelor's degree	3.83	.87	.3865	.07
% at-risk served by VPI	1.20	.72	.4706	.05
Adjusted R^2	32%			

Source: Analysis of data provided the Virginia Department of Education and the U.S. Census Bureau.

Regression Analysis of Fifth Grade SOL Scores

Variable	Coefficient	t-Value	Signicance Level of Coefficient	Standardized Coefficient
English Average Scaled Score				
Intercept	490.77	95.48	<.0001	0
% Black	-31.41	-5.01	<.0001	-.43
% FRPL	-24.87	-2.72	.0074	-.26
% Adults with bachelor's degree	16.44	1.35	.1789	.11
% at-risk served by VPI	8.31	1.23	.2213	.09
Adjusted R^2	40%			
English Pass Rate				
Intercept	93.50	39.83	<.0001	0
% Black	-9.20	-3.21	.0017	-.30
% FRPL	-14.15	-3.39	.0009	-.36
% Adults with bachelor's degree	-4.42	-.80	.4275	-.07
% at-risk served by VPI	7.06	2.29	.0238	.17
Adjusted R^2	29%			
Math Average Scaled Score				
Intercept	484.05	54.05	<.0001	0
% Black	-16.86	-1.54	.1255	-.16
% FRPL	-28.01	-1.76	.0811	-.21
% Adults with bachelor's degree	23.04	1.09	.2789	.11
% at-risk served by VPI	21.13	1.79	.0751	.15
Adjusted R^2	12%			
Math Pass Rate				
Intercept	87.01	25.52	<.0001	0
% Black	-4.00	-.96	.3382	-.10
% FRPL	-13.53	-2.23	.0275	-.27
% Adults with bachelor's degree	-1.76	-.22	.8278	-.02
% at-risk served by VPI	9.02	2.01	.0464	.17
Adjusted R^2	9%			

Source: Analysis of data provided by the Virginia Department of Education and the U.S. Census Bureau.

Appendix E

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Appendix F

Agency Responses

As a part of the extensive evaluation process, State agencies and other entities involved in a JLARC assessment effort are given the opportunity to comment on an exposure draft of the report. Appropriate technical corrections resulting from comments provided by these entities have been made in this version of the report. This appendix includes written responses from:

- Office of the Secretary of Education
- Department of Education

COMMONWEALTH of VIRGINIA

Office of the Governor

Thomas R. Morris
Secretary of Education

November 6, 2007

Mr. Philip A. Leone
Director, Joint Legislative Audit and Review Commission
Suite 1100, General Assembly Building, Capitol Square
Richmond, Virginia 23219

Dear Mr. Leone,

I wish to express appreciation to JLARC for its evaluation of the Virginia Preschool Initiative (VPI) and relevant outcomes from investment in high quality preschool in the Commonwealth. I commend JLARC staff for their professionalism and hard work in producing a significant and valuable evaluation of the Virginia Preschool Initiative, which recognizes the potential benefits for participating children.

While the draft report is thorough and thoughtful, it does not in any detail address the current practice within the VPI program of public schools partnering with private providers. This is important since the utility of expanded partnership with the private sector in delivering preschool services through the state-funded initiative has been recognized as a viable strategy.

A mixed delivery system, utilizing the capability and capacity in both public and private settings, yields a number of advantages:

- Reduces competition and preserves small business.
- Provides more options for parents.
- Accommodates working families by providing setting choices that offer wraparound care and full-year services in one location.
- Allows funds to be spent on preschool service delivery rather than on bricks and mortar.
- Recognizes the long expertise and tradition of service to children and families by private programs.
- Includes diverse partners using consistent quality measures through the Quality Rating and Improvement System (QRIS), which promotes quality standards that increase opportunities for all children in both public and private sector settings to access high quality early care and education.

Again, I wish to thank the Commission and its staff for this important work, and I look forward to the publication of the report.

Sincerely,

Tom Morris

Thomas R. Morris

COMMONWEALTH of VIRGINIA

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November 6, 2007

Mr. Philip A. Leone, Director
Joint Legislative Audit and Review Commission
General Assembly Building, Suite 1100
Capitol Square
Richmond, Virginia 23219

Dear Mr. Leone:

Thank you for the opportunity to review the exposure draft of the Joint Legislative Audit and Review Committee's (JLARC) report, *Virginia Preschool Initiative (VPI): Current Implementation and Potential Changes*. Staff members at the Department of Education found the report thorough and informative, and appreciated the opportunity to provide input on the draft. The report does an excellent job of combining into one resource, comprehensive information that explains the evidence-based rationale for the program, its implementation, funding, and outcomes associated with VPI. It is clear that your staff spent considerable time reviewing historical and statistical data, observing at various program sites, and conferring with individuals associated with VPI.

The report supports the added value of quality preschool programs, in particular VPI. As your report documents, VPI classrooms typically provide children with an engaging learning environment and children who attend VPI programs demonstrate increased literacy skills that extend into kindergarten. I also appreciate your careful review of the costs associated with program implementation, and recognition of the limitations associated with the current funding structure.

Thank you for the excellent work of your staff in presenting the facts and circumstances related to implementation of VPI.

Sincerely,

Billy K. Cannaday, Jr.

BKCJr/LMW

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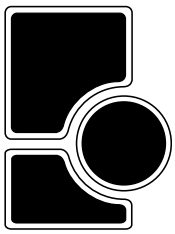

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