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ABSTRACT

This report discusses the activities and outcomes of Special Instructional Assistance (SIA) an early intervention, prevention program designed to help Georgia students with identified developmental delays overcome the effects of those delays on academic achievement. The central tenet of the program is to provide more individualized instruction to eligible students by either reducing the number of students in a classroom (reduced class size model) or by adding a second certified teacher (augmented model) into a classroom. The evaluation of the SIA program utilized data gathered from observations, focus groups, surveys, students' Iowa Tests of Basic Skills (ITBS) scores, and data from the state's student information systems. During the 1998-99 school year the SIA program served nearly 80,000 children throughout all areas of the state, at a cost of approximately 104 million dollars. The data show that, on the whole, teachers and administrators view the SIA program as a positive force in Georgia's schools. The primary benefit, widely articulated throughout each of the evaluation data sources, is the ability to reduce class size, via one of the two program models, and provide more individualized instruction to SIA and non-SIA students. Recommendations are provided for expanding the program. (Author/CR)

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Georgia Department of Education
Linda C. Schrenko
State Superintendent of Schools

Evaluation of the Special Instructional Assistance Program Final Report

May 2000

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Executive Summary

Special Instructional Assistance, or SIA, is an early intervention, prevention program designed to help students with identified developmental delays overcome the effects of those delays on academic achievement. The central tenet of the program is to provide more individualized instruction to eligible students by either reducing the number of students in a classroom (reduced class size model) or by adding a second certified teacher (augmented model) into a classroom. The evaluation of the SIA program utilized data gathered from observations, focus groups, surveys, students' Iowa Tests of Basic Skills (ITBS) scores and data from the state's student information system. During the 1998-99 school year, the SIA program served nearly 80,000 children throughout all areas of the state, at a cost of approximately $104 million. Although defined as a program for students in grades K-5, SIA is implemented statewide as a K-3 program. In many systems, however, funding levels do not allow SIA to reach beyond kindergarten or first grade.

The data show that, on the whole, teachers (both SIA and non-SIA) and administrators view the SIA program as a positive force in Georgia's schools. The primary benefit, widely articulated throughout each of the evaluation data sources, is the ability to reduce class size, via one of the two program models, and provide more individualized instruction to SIA and non-SIA students.

There is a need to reexamine the assessments used to determine SIA eligibility. SIA schools have always had the autonomy to select their own instruments for identifying eligible students and for assessing student progress in each grade level served. Therefore, the only consistent test data available across all SIA schools is the third grade ITBS. These scores only allow for examination of SIA students' achievement after their participation in the program, and therefore, limit the potential for examining academic growth at each SIA grade level.[1]

Several findings emerged from the achievement data. First, there is no evidence to show that the overall achievement gap between SIA and non-SIA students has been reduced by participation in the SIA program. SIA students as a whole continue to score lower on both the reading and math portions of the ITBS than their non-SIA peers. In addition, the achievement data also showed that SIA students are more likely than non-SIA students to be enrolled at some point in other compensatory education programs, specifically Title I and the Remedial Education program (REP). Moreover, students enrolled in SIA and one or more compensatory programs scored lowest on the reading and math ITBS sub-tests. This suggests that students with the greatest academic need are being served by more compensatory programs.

There is, however, some evidence that the SIA program is effective in improving the achievement of the **lowest** performing students (i.e., those enrolled in the SIA program for two or three years). The number of students scoring at or below the 30th percentile on both the reading

[1] The Criterion-Referenced Competency Tests (CRCT) which will be implemented at all grade levels in 2002 will provide a consistent measure of academic achievement for each grade level.

and math portions of the ITBS decreases as the length of program participation increases up to three years. In other words, the proportion of SIA students scoring at or below the 30th percentile is smaller for students that participate for at least two years and even smaller for students that participate for three years. The data show that offering the program for three years, in grades K-2, produces the largest decrease.

In examining academic achievement relative to which program model (reduced class size or augmented) is employed in the school, the data show that neither model appear to have an effect on students' reading achievement. However, the augmented model appears to have a positive effect on students' math ITBS scores.

The data from each of the sources of information (observations, focus groups, and surveys) provided, for the most part, mutually supportive information. In terms of implementation, the observation, focus group, and survey data show that teachers and administrators all view the program as a positive entity to assist students with developmental delays.

The data also show that the primary benefit derived from the SIA program is the ability to use SIA funds as a vehicle to reduce class size, particularly during language arts and math instruction. By and large, teachers and school administrators prefer the reduced class size model over the augmented model, although the latter appears to be more widely used. Most articulate budgetary constraints as their reason for not implementing the reduced class sized model. Space limitations preclude many schools' ability to put the reduced class model in place.

In terms of instructional practices, the data show that in grades K-2, teachers do employ some strategies unique to the SIA program. The primary difference between SIA and non-SIA classrooms appears to be the use of learning centers in SIA classrooms. However, in grade three, the data show that in SIA classrooms, instruction did not differ from that found in other classrooms.

The parental involvement component, which is a required part of the SIA program, has not been fully implemented. The data show that schools have methods of keeping parents informed of student's progress but there is only minimal parental involvement in school activities.

In the upcoming school year (2000-01), the SIA program will be discontinued. In its place, many schools will begin implementing the Early Intervention Program (EIP). In many respects, the components described as part of the EIP are compatible with the findings of the SIA evaluation.

The funds allocated for the EIP will serve as a vehicle to reduce class sizes in the early elementary grades. This approach is consistent with the SIA evaluation findings which suggest that across the board, teachers and administrators viewed the SIA program as an opportunity to reduce class size and thereby, provide more individualized instruction to students in need of assistance.

The EIP will serve students in grades K-3. The achievement data presented in the SIA evaluation show that the greatest gain, in terms of fewer numbers of students scoring at or below the 30th percentile, was achieved in those schools where the SIA program is offered for at least three years (K-2). Results of this study will be available to guide the program administrators in the development and implementation of the EIP.

Part I: Overview

Under Georgia law, the State Board of Education is required to "create a special instructional assistance program to assist students with identified developmental deficiencies which are likely to result in problems in maintaining a level of performance consistent with expectations for their respective ages" (O.C.G.A. §20-2-153). Other conditions of eligibility specified in this same section of State Code include:

- The child must be in grades kindergarten through five.
- The developmental deficiencies must not be the result of an "identified disabling condition."
- The child must not be enrolled in the Remedial Education Program or any special education program.

Special education students who only receive services for physical disabilities, and who are otherwise eligible to participate in SIA, are exempted from the third limitation.

Georgia Department of Education (GDOE) guidelines for the SIA program help to further define the purpose and goals of the program. They state that SIA "is designed to serve students with identified developmental delays that may prevent them from maintaining a level of performance consistent with normal expectations for their respective ages. While the focus of SIA is on early intervention and prevention for an identified population of children, the program structure allows for an emphasis on improved instruction and increased academic achievement for all students" (FY 98 SIA Guidelines).

Purpose of the Study

By almost any standards, SIA is a large and expensive program. During the 1998-99 school year, it served nearly 80,000 children throughout all areas of the state, at a cost of approximately $104 million. Given the scope of the program, and questions raised in some quarters about its success in helping targeted students maintain performance levels consistent with expectations for their ages, the State Superintendent of Schools directed the GDOE to conduct a large scale evaluation of the SIA program. The four evaluation questions to be answered were:

1. How is the SIA program currently being implemented in Georgia?
2. Is the academic performance of SIA students on par with the academic performance of non-SIA students?
3. What is the relative effectiveness of each delivery model?
4. Is the SIA program cost effective?

This report addresses all four evaluation questions. Recommendations for changes in the legislative and regulatory structure underlying the SIA program are also made in the last section of this report.

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Methodology

The data used in this evaluation were collected through three interlocking sources: surveys of SIA and non-SIA teachers and principals; focus groups that also involved these same groups; and on-site observations that were conducted at 30 schools across Georgia. The questions asked in all three data collection processes were developed with the input of SIA and non-SIA elementary school teachers, and elementary school and district administrators across the state.

Once the survey, focus group, and observation data were collected, they were paired with existing GDOE records – principally student scores on the third grade ITBS battery that is administered as a part of the State Testing Program – to determine whether the SIA program is helping students maintain "a level of performance consistent with expectations for their respective ages" (as specified in state law) and to compare the performance of SIA and non-SIA students.

The survey research was conducted Spring 1998 by Applied Research Services, Inc., a private research firm located in Atlanta, Georgia. Surveys were administered to approximately 800 SIA teachers, 500 non-SIA teachers, and 200 paraprofessionals at a geographically stratified random sample of 184 schools. The surveys registered an 85 percent overall response rate.

The 33 focus groups that were a part of this study were conducted spring 1998 by the Denver, Colorado office of RMC Research Corporation, a private educational research and technical assistance firm. Three focus groups were held in each of Georgia's 11 federal congressional districts and involved a total of 175 participants.

The observations and related interviews were conducted at 30 randomly selected sites fall 1998. This part of the process was coordinated by the Occupational Research Group, a division of the School of Leadership and Lifelong Learning in the University of Georgia's College of Education, and utilized the skills of researchers from 12 of Georgia's state colleges and universities.

The analysis of student achievement scores and other archival data, and the final synthesis of the data, was conducted by Research, Evaluation, and Testing staff at the GDOE.

The cost effectiveness portion of the evaluation was conducted by Augenblick and Meyers, Inc. of Denver, Colorado. Data were gathered from local school districts, the GDOE budget office and through multiple discussion groups, telephone interviews and an expert panel held with key program personnel.

The complete description of the methodology used to answer the evaluation questions is provided in Appendix A of this report.

Part II: SIA Program Implementation

State Board of Education rules and GDOE guidelines allow schools and school districts considerable latitude in the ways that they may implement the SIA program. This section of the report is organized into two main parts. In the first, the implementation requirements and options that govern the program are briefly described. Then, the actual means by which SIA is conducted at a sample of schools across the state are presented.

State Rules and Guidelines

Purposes of SIA. State Board of Education Rule 160-4-2-.17 defines SIA as "a program designed to serve students in grades kindergarten through five who have identified developmental delays that may prevent them from reaching a level of performance consistent with normal expectations for their respective ages." GDOE guidelines elaborate on this, noting that while the focus of SIA is on early intervention and prevention for an identified population of children, the program structure allows for an emphasis on improved instruction and increased academic achievement for all students.

Student Eligibility. Under SIA guidelines in effect during the 1998-99 school year, kindergarten children may qualify for the program if they score at or below the 35th percentile on a norm-referenced test (NRT).[2] Students in the first, second, and third grade may qualify if they score at or below the 30th percentile on a NRT. Students must be assessed each year to be either placed in or removed from the program. The specific NRT to be used is left to the discretion of the local districts or, at the districts' option, the individual schools. The NRT does not have to be a paper and pencil test.

Program Models. The SIA program can be delivered through any of three instructional models. The two most prevalent models are Reduced Class Size and Augmented Teaching. The Reduced Class Size model is used to reduce class size in order to provide more emphasis on instruction and increased student academic achievement. Using SIA funds, one or more additional certified teachers may be hired to reduce the class size below the size that would result from regular per pupil FTE funding.

In the Augmented Teaching model, an additional certified teacher, often referred to as an "augmented teacher," works with the regular teacher for a part of the school day. Together, the regular teacher and the augmented teacher plan and develop appropriate strategies for meeting students' needs. Under this model, either teacher may work with both targeted (SIA) students and any other students in the class. The two teachers may work together and share a single classroom if space and class sizes are conducive to this arrangement. The specific schedule and role of the augmented teacher is established by each school.

The third delivery model is termed "Other School Designs." This model – really, a category of practices not covered by the Reduced Class Size or Augmented Teaching approaches

[2] School districts may request a waiver of this particular guideline.

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– gives schools the flexibility to design and implement other instructionally sound models that incorporate innovations or special initiatives. Available options include, but are not necessarily limited to, parallel block scheduling with flexible grouping, continuous progress and multi-age class grouping, and inverted heterogeneity classes. A complete program description including the models is contained in Appendix B.

Regardless of the delivery method(s) selected by a school, state guidelines require that instructors provided through the SIA program should be certified teachers and paraprofessionals with experience and expertise in teaching students with diverse needs and abilities. The guidelines further state that it is essential that SIA teachers have the ability to work well with other teachers in collaborative teaching models.

Also regardless of the model(s) used by a school, students are to be heterogeneously grouped if at all possible. That is, the majority of the students in a SIA class must be non-SIA students. In cases where heterogeneous grouping is impossible, schools must include in their application for SIA funds a written explanation of why either the program design or the student population prevents such grouping.

In addition to grouping strategies, GDOE guidelines also specify the maximum number of students, both SIA and non-SIA, that should be in a SIA classroom. The number varies by the model being used, the grade level, and whether a paraprofessional is present. The class size guidelines are presented in Appendix B of this report.

Teaching Strategies. Under GDOE guidelines, a variety of instructional strategies and materials are to be selected by school staff for use in the classrooms. These materials are to be chosen based on knowledge of how children learn and documented best/effective practices. Specific teaching strategies are to promote further development of children's language, cognitive, social, and motor skills. Learning centers are not required.

Student Assessment. State SIA guidelines require the use of student assessments that will reflect the students' academic progress. These assessments are to be used for planning instruction to increase academic achievement. There is no prescribed assessment instrument, nor set of instruments, that must be used. Rather, the state only requires that the tests that are used must provide the basis for establishing and assessing achievement objectives and must yield a measure of student gains.

As noted earlier in this report, students must score at or below a specified cut point on a NRT in order to be eligible for SIA services. That same NRT may be administered as part of a pretest-posttest sequence to assess individual students' academic gains during the school year. Alternately, districts/schools/teachers may choose to track student progress through more informal instruments.

Parental Involvement. The SIA program recognizes that parental involvement is vital to a child's educational success. Under GDOE guidelines, the parent component of the SIA program should be coordinated with other programs as a part of the school's overall plan for

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involving parents. Parents are to be informed of their child's progress. The local plan for involving parents/guardians should be designed to meet the needs and characteristics of the families and the community. Examples of activities that may be included are parent conferences, home visits; parent workshops, training/instructional opportunities; parent/guardian volunteer or mentoring programs; resource centers at the school; encouraging/inviting parent participation on advisory panels and school improvement committees; and skills checklists.

Staff Development. GDOE guidelines state that staff development should be provided for all staff to adequately prepare teachers, paraprofessionals, and administrators to work with diverse learners. SIA funds may be used to support training activities, materials, and media in accordance with state purchasing and accounting procedures.

School-level Implementation Practices

The preceding section, "State Rules and Guidelines," outlined the standards that schools must meet in order to receive state funding for the SIA program. The current section describes actual implementation practices that were reported and/or observed through the roughly 1,500 surveys, 33 focus groups, and 30 on-site observations that were conducted as a part of this phase of the SIA program evaluation.

Purposes of SIA. Across the focus groups and observations, teachers, paraprofessionals, and administrators generally established for themselves a goal that is different from, and more strict than, the program's goal. As noted in the previous section concerning GDOE guidelines, SIA is intended to serve students who have "identified developmental delays that may prevent them from reaching a level of performance consistent with normal expectations for their respective ages" (from "Special Instructional Assistance [SIA] Program Guidelines and Implementation Suggestions"). Neither enabling state legislation nor GDOE guidelines call for SIA to bring these students to a level of performance consistent with children of the same age who do not have identified developmental delays.

Despite the officially stated purpose of SIA, virtually all of the educators involved in the focus groups and observations said, in one way or another, that the basic purpose of the SIA program is to provide instructional assistance for students with developmental delays so that they can achieve at grade level. For example, a teacher at school 224 commented, "*The SIA program is to help children who are developmentally delayed to levels of other children their age--to be capable of the skills and activities of those who are on track.*" The SIA coordinator at school 224 expanded on this by saying, "*The [purpose of the] SIA program is to take children with developmental delays and assess their needs, to provide enriching environments and experiences, to provide models and to teach with learning styles and modalities to bring children along to developmental/age grade levels.*"

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The principal of school 61 also defined SIA to include *"environmentally poor children. It [SIA] gives opportunities for language and social interaction."* A third grade SIA teacher at school 263 said, *"The purpose of SIA is identifying at-risk students and providing alternative instruction and materials to meet their needs."*

At over half of the observation sites, educators saw SIA as a vehicle for targeting the development of students' language arts skills. For example, the purpose of the SIA program at school 81 focused on raising students' skills in listening, language expression, cognition, social skills, and dexterity so students could profit from reading and other instruction. Staff at school 75 reported, *"the main goal of SIA here is to send all children as readers into second grade."* Personnel at other schools mentioned communication skills, oral language development, and reading. Only one school, 154, specifically mentioned math along with language as a purpose of SIA .

At a number of observation schools, the purpose of SIA also included "bridging the gap" between developmentally delayed students and other students. The county SIA coordinator at school 92 illustrated this by stating that the SIA program focused on *"closing the gap between children who have had experiences and those who have been deprived."* Two other schools included, among other purposes of the SIA program, bringing the students up to the 30th percentile on the norm-referenced assessment instrument.

At many observation sites, staff agreed that the SIA program should benefit *all* students. For example, staff at school 101 noted that the SIA program provided additional teachers in order to focus on literacy needs, as well as to improve every child's learning opportunities. The principal said the program's goal is, *"Basically, to help all students learn more."* Staff at another school said that the purpose of SIA was to accelerate the learning of all students.

Other purposes of the SIA program expressed by staff at the observation sites included providing:

- One-on-one instruction
- Reduced class size
- Funds for staff, including paraprofessionals
- Funds for materials and supplies
- Use of hands-on activities
- Reduction of the student-teacher ratio
- Life experiences
- Re-teaching basic skills introduced in the classroom

A third grade teacher at school 52 reported that, at their school, SIA emphasizes *"getting parents involved in their children's education."* Another purpose cited at school 215 was providing overall help for teachers. The SIA coordinator said that SIA was to be *"another pair of hands, another teacher, in the classroom for a while."*

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The report for school 183 described how educators at that site have expanded the concept of "developmentally delayed" students who are served by SIA. In addition to those children identified by performance on a norm-referenced test, this school also includes in the definition those students who do not have prior knowledge that can be linked to academics; who lack motor skills; and who have short attention spans.

During the observers' visit to school 263, staff referred to the students served by SIA by various labels, including "slow learners," "special needs," "at risk," "lower than the rest," "language delayed," "falling through the cracks," "lower socio-economic level," and from "poor home environments." Personnel at school 21 specified serving bilingual and culturally disadvantaged students as part of SIA's purpose. One kindergarten teacher said, *"It [SIA] is for one-on-one contact...Reduced class sizes are necessary for us to help bilingual children."* Another kindergarten teacher at the school noted that SIA is *"designed to take children who are culturally disadvantaged and provide opportunities for learning and advancement to the norm."*

An SIA paraprofessional at school 263 provided a different perspective on the program. In this person's view, *"My primary role is definitely to help those children, the SIA kids, and any of the other kids that would need any kind of assistance with their assignment. That's why I'm there. As far as a paraprofessional, we take a lot of the load, paperwork, off of the teacher so that the teacher has some more time, too. We do that part, and then it is back to the kids. When the teacher is working with one group, we have other groups, the kids that need the extra teaching. I'm with the kids all day. I eat lunch with the kids. With the exception of their PE time, or when I'm pulled out for the chocolate sales, things like that, I'm working in the classroom with the kids all day."*

A critical link between purpose and practice is the extent to which eligible students are being served. As noted in Part I of this report, state law (O.C.G.A. §20-2-153) specifies that the SIA program is authorized for eligible students in kindergarten through fifth grade. Apparently anticipating that funding for such widespread service might not be available, O.C.G.A. §20-2-153 specifies that if there is a funding shortfall, the youngest eligible students must be served first.

Across the 30 observation sites involved in this study, the visiting teams found that the program is offered in kindergarten at all sites. Twenty-seven sites (90 percent) offer SIA in both kindergarten and first grade. Only 60 percent of the sites (n=18) offered the program in K-2, and even fewer (20 percent, n=6) offered it in K-3 (Chart 1 and Appendix C). As is required under the law, none of the observation sites offered SIA in, for example, grades kindergarten and two, but not the first grade.

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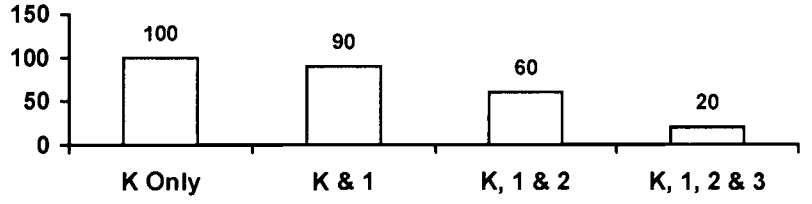
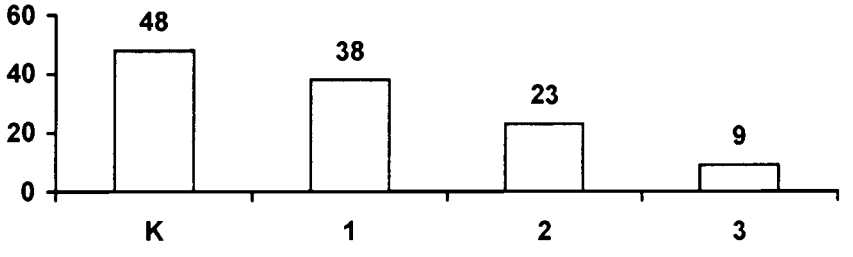
Chart 1: Percent of Observation Sites Offering SIA, by Grade



The teacher survey results support the finding that SIA operates most often at the kindergarten level. Of the SIA teachers who teach only one grade, 44 percent are kindergarten teachers. All told, 48 percent teach either only kindergarten or kindergarten plus some other grade (almost always first grade). Chart 2 shows the percent of SIA teachers assigned to various grade levels, as reported in the SIA Teacher Survey. (Because some teachers are assigned to multiple grade levels, the total percent shown in Chart 2 exceeds 100 percent.)

Chart 2: Percent of SIA Teachers Working at Each Grade Level



Despite the program's stated goal of serving students in grades K–5, GDOE program managers report that SIA has never received sufficient funding to be offered beyond the third grade. Even at that, some district administrators report that there is not sufficient funding to offer the program beyond the earliest grades. A district administrator in site 204's central office reports that they would like to expand the program to include more students, but that district only receives enough money to operate SIA in kindergarten. This phase of the study did not include any processes for evaluating such claims. However, observers at a site in that district found that, indeed, SIA is not offered in first grade or above. This issue is also addressed in Part V of this report (cost effectiveness).

At another observation site (school 224) in a different district, third and fourth grade teachers told observers that they wish SIA could be offered to their third and fourth grade students, too. These older students were also seen as being able to benefit from smaller class size and more individual attention. Said one teacher, *"Our children come to school so far behind*

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that it takes a long time to help them catch up and the job is not complete by the end of second grade for many of them."

To summarize, teachers and administrators indicate that the goal of the SIA program is to increase the performance of identified students to a level consistent with their non-SIA peers. This goal is more narrow than the state's stated goal for the program. They also felt the program's specific academic emphasis was and should be on improving the reading and language arts skills of students. Finally, although the SIA program can be implemented in grades K through three, most schools reported that the program is only offered at the earliest grades (typically K and 1) due to funding limitations.

Student Eligibility. The rules that establish student eligibility for SIA participation, and therefore directly influence the program's ability to meet its purposes, were a concern for some teachers and administrators who participated in the focus groups. Generally, administrators were more positive about the eligibility requirements than were teachers. On a one to five scale, with one being very dissatisfied and five being very satisfied, administrators gave the eligibility requirements an average rating of 3.5. The average teacher rating was 2.8.

Most focus group members said that they are satisfied with the level and quality of the information they obtain from the assessments they use. Some, however, were passionate about their belief that young children should not be tested with anything other than what they consider to be developmentally appropriate tests. Criticisms particularly centered around the use of any norm-referenced test, including the ITBS; many participants said that such testing is inappropriate at this grade level. They felt that using a norm-referenced test in the primary grades is harmful to children, a waste of time, and/or not relevant to instruction. Most of those who voiced these concerns believed that teacher recommendations, locally developed assessments, or diagnostic tests would be better suited for determining eligibility.

According to the teacher survey, 92 percent of the respondents indicated that their school used the Basic School Skills Inventory Diagnostic test to help make decisions about which students are eligible for SIA. Forty-six percent use the Developing Skills Checklist, and 45 percent use the ITBS. A full list of the eligibility tests that were reported in use at the survey sites is presented in Appendix D.

Some focus group participants complained about the need to conduct any form of student assessment. One teacher observed, *"We're spending a tremendous amount of money and time away from the students on these useless assessments."* One administrator suggested a greater role for the Basic Literacy Test (BLT) in the SIA program. *"There are no norms,"* s/he noted, *"but it's a pre/post."*

Sixty-four percent of respondents said that their school's testing program is at least reasonably accurate in determining SIA placement (Chart 3). However, 91 percent said that a norm-referenced test should not be the only factor used to determine eligibility.

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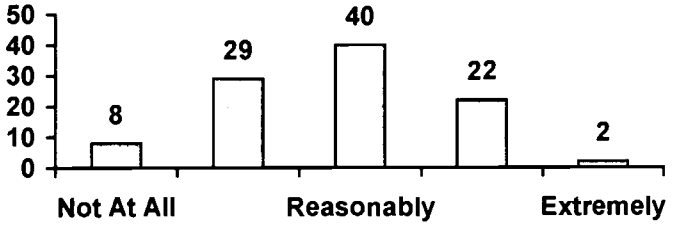
Chart 3: Teacher Perceptions of Eligibility Test Accuracy (By Percent Responding)



Despite SIA teachers' belief that the testing approach used by their school is reasonably accurate, the surveys did not indicate a widespread belief that the best test for the purpose was being used. When asked to rank the tests that they believe should be used, 16 percent identified the ITBS and 12 percent selected the Developing Skills Checklist. The other two instruments that received 10 percent or more of the vote were not tests that are currently being widely used in the state (Table 1).[3] The remaining responses were distributed across the other survey choices.

Table 1: Most Frequently Recommended Eligibility Tests, from SIA Teacher Survey	
ITBS	16%
Developing Skills Checklist	12%
Peabody Picture Vocabulary Test	11%
Kindergarten Language Screening	10%

Observers at school 61 and school 215 provided detailed descriptions of the rather complex approach that teachers at those sites used to assess student SIA eligibility. Documents viewed at school 61 indicate that when children enter kindergarten, they are screened using a Development and Academic Readiness Test (DART) to establish an eligibility pool. After being placed in the pool, children then take a Developmental Skills Checklist (DSC) as a pretest and the GKAP as a posttest. Upon entering the first grade the children take the Metropolitan Readiness Test (MRT) as a pretest and the Standardized Test for the Assessment of Reading (STAR) as a posttest. The STAR is used in the second grade for admittance into and transition out of SIA. Students must score below the 30th percentile to be admitted to the SIA program. Some of those interviewed were dissatisfied with the use of the STAR test. One teacher stated that, *"The STAR is not enough. It leaves too much to chance."*

At school 215, kindergartners initially are given the Brigance to determine eligibility. If they score below the 35th percentile, they are placed on the SIA roll. In first grade, if they score

[3] When interpreting data such as these, it is always important to consider the extent to which respondents say that an instrument should be used because it is the one that they already use and therefore is the one with which they are familiar. In the case of the ITBS, it appears that there is only limited belief in its utility as an SIA placement assessment outside the group of teachers that already use it. Only 29 percent of the respondents who said the ITBS should be used are not currently using it.

below 17 on the BLT kindergarten section and first ten Dolch words, they are given the Wide Range Achievement Test (WRAT). If they score below 92 on that or are below the 30th percentile on two of three sections, they are placed on the SIA role. In second grade, if they have a score below 19 on the BLT and are on or below the 30th percentile on the first grade spring ITBS, they are placed on the SIA roll. The observers did not report which Brigance instrument is used in kindergarten. They also did not report how the school manages to track student growth across years when different tests are used in grades K, 1, and 3.

The issue of SIA eligibility is tightly tied to the issue of class size. In schools where relatively large numbers of students are judged to be eligible to receive SIA services, class size limits may nonetheless restrict the number of students that are served by the program. Several focus group participants discussed concerns about the 30 percent or 35 percent participation cap (depending on grade level) that is placed on the program. They believed the SIA program should serve all children, or at least all children in need.

Although they expressed some concerns about eligibility, focus group members were generally satisfied with class size requirements. Issues that were discussed centered on the need for even smaller class sizes for students at this age level, problems associated with limited space, and concerns about how to handle student transience. A few participants discussed the need to focus more on effective practice than class size. One respondent discussed what s/he saw as the "confusing language and strange logic" of the requirement. A few talked about delays in hiring new teachers based on the lack of timeliness in receiving data about student eligibility.

While there were some concerns about various rules and regulations governing the SIA program, most schools that were included in the observation phase of the study seemed to be making, at the very least, a good faith effort to conform with both the spirit and the letter of those directives.

In a few cases, it appears that local systems may be exercising some discretion in applying rules that are not necessarily intended to be flexible. For example, in some - but certainly not all - cases, observers found that the requirement that the number of SIA students in a classroom generally should be less than half of the total number of students in the class was not being followed.[4] The situation in two first grade classrooms at school 295 (a site using the reduced class size model) was typical of what was found in these instances: in one class, nine of the eleven students were SIA-eligible; in the other, ten of the fifteen were SIA students.

School 204 provided another example of sites using a level of flexibility that may fall outside program guidelines. Here, school personnel noted that they follow the requirement that the number of SIA students in a class must be at least one less than the number of non-SIA students. Despite this assertion, there is strong evidence that the school may not be completely adhering to this rule. School 204's policy directs that, if the number of SIA students is greater than the number of non-SIA students in a class, then center time must be increased from one to one and one-half hours.

[4] Georgia Department of Education guidelines do allow schools to waive this requirement if specific local circumstances preclude compliance.

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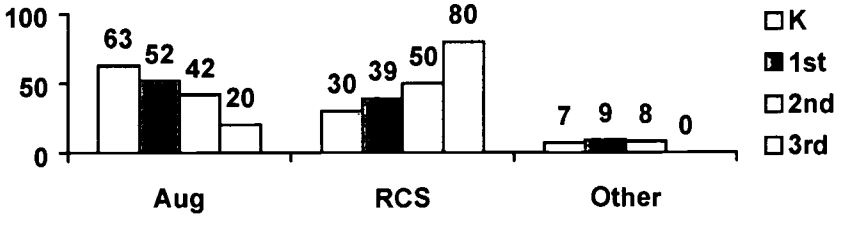
The teacher survey results support the contention that while there are situations in which more than half of the children in a class have been selected for SIA services, this is the exception rather than the rule. Indeed, teacher survey data suggest that about 75 percent of the SIA classrooms in Georgia do not have a majority of SIA students. (Due to variations in class size, the survey indicates that only about 65 percent of SIA students are served in classrooms where they do not outnumber non-SIA students.)

In summary, there was some variation in teacher's perception about the appropriateness of the tests used to determine SIA eligibility. Some teachers felt the use of norm-referenced tests, particularly for young children was inappropriate, while others felt the assessments instruments that were used were reasonably accurate. In terms of the program's class size requirements, some teachers felt that these requirements limited the number of eligible students that could be served. In addition, it appears that some schools use their own discretion in applying the class size requirements.

Program Models. The three instructional models that are available for SIA programs are Reduced Class Size, Augmented, and a catch-all category, Other. Each model was previously described in the State Rules and Guidance section of this report.

Chart 4 shows the frequency with which these models were found in use at the observation sites. Observers found that the Augmented model is, by far, the most frequently used approach in kindergarten and first grade classrooms. The natural assumption - or at least, the natural hope - is that educators have considered the pros and cons of the various models and chosen the Augmented model because it best serves their students. In at least one case, though, a far different rationale was used. According to the principal at school 142, the Reduced Class Size model requires class sizes to be so small that the school does not have the funding to support this approach. (At this school, the classroom ratio of students to teachers is about 7:1 when the augmented teacher is present, and about 11:1 when s/he is not.) Consequently, this school used the Augmented model in all of its classrooms.

Chart 4: Models Used at Observation Sites, Percent by Grade



Similarly, focus group participants most frequently identified the Augmented model as the approach used in their school. Reasons cited included the lower cost of offering this model, more efficient use of space and/or resources, that it is the only viable choice due to space limitations, that it is the best way to serve children, that it helps promote teachers' ownership in the SIA program, and that it provides the greatest help to the classroom teacher. The cost

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implications associated with implementing each of the models is discussed in Part V (page 42) of this report (Cost Effectiveness).

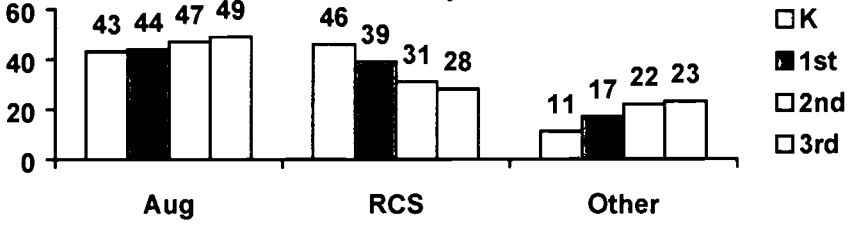
Teachers in the focus groups believe that the Augmented model provides more focused attention on the children, and they like the collaboration that it promotes. Administrators also mentioned collaboration as a reason why they prefer this model. Improved parent involvement, having more adults in the classroom, and the appropriateness of this model for young children were also cited as strengths of the Augmented model.

Focus group participants who preferred the Reduced Class Size model said that their preference was based on the ease of logistics for planning and implementing the program, the ability to deliver services all day, and the provision of more individualized instruction to children. The availability of teachers and the number of SIA-eligible students were also cited as reasons for choosing the Reduced Class Size model. Some of those who preferred this approach said that space limitations sometimes made this an impossible choice; there simply were not enough classrooms to accommodate the increased number of classes.

In general, administrators in the focus groups tended to prefer the Reduced Class Size Model over all other models. They valued the ability to provide children with more individualized instruction. Teachers were more supportive of the Augmented model. The reason for their preferences centered on the value they placed on collaboration and having multiple adults in the classroom.

The utilization pattern that emerges from the SIA teacher survey data is somewhat different than that found in the observations and focus groups. Here, too, the Augmented model was shown to be less frequently used in the higher grades. However, the differences between the two models in kindergarten and first grade were not nearly as dramatic as the observers reported. Also, the percent of teachers indicating that they used some other model was considerably higher than was reported by the observers (Chart 5). The reasons for the difference between the observation reports and the survey responses are not clear. It is possible that teachers are unclear as to the name of the model they use. There may also be a legitimate difference between the samples.

Chart 5: Models Used at Survey Sites, Percent by Grade



In some instances, schools have switched from one model to another, or use several models concurrently. At observation site 75, the Reduced Class Size model was used until the 1997-98 school year. Under that model, the school only had the resources to serve 18 students.

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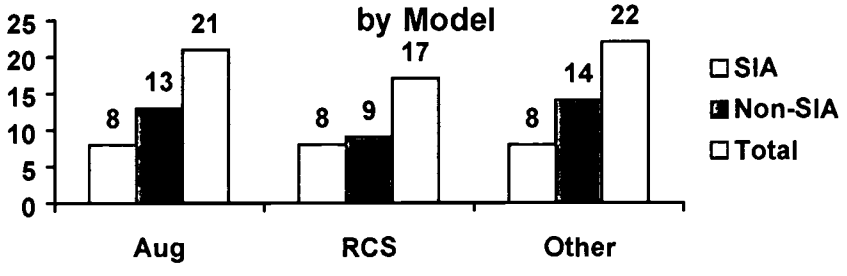
In August 1997, the school shifted to the Augmented model so that SIA could serve more children. That shift increased the number served to 52 students. Under the Augmented model, the class size is larger than the Reduced model because there are two teachers providing instruction in the classroom. The teachers and the paraprofessional that had been involved with the Reduced Class Size model felt that it was a more effective approach than the Augmented model.

At school 302, where SIA operates in grades K-2, observers also reported that an augmented model is used in all grades. However, each grade implements the model differently. In kindergarten, teachers identify individual students who need remediation on specific skills. The SIA teacher works on these skills with two to six children. First grade students are generally sent to the SIA teacher in ability-based homogeneous groups, comprising about half of the students in the class, to work on language development skills. During this time, the regular teacher conducts some other instructional activity. In the second grade, a parallel block design is used. Here, the regular teachers work with either the higher or lower level students in their class on a guided reading assignment. The remainder of the class combines with a different level from another class to form a heterogeneous ability group working with the SIA teacher and the second grade paraprofessionals.

The ability to serve more students under the Augmented model is reflected in the larger class sizes found statewide when that model is used. The teacher survey found that in the Augmented model there are, on average, eight SIA students and thirteen non-SIA students. In the Reduced Class Size approach, there are typically eight SIA students and nine non-SIA students. In the Other models there are, on average, eight SIA students and fourteen non-SIA students (Chart 6).

Chart 6: Survey Reports of Average Number of SIA and Non-SIA Students per Classroom, by Model



Do the class sizes that result from the various models produce satisfactory teacher to student ratios? Eighty-seven percent of the SIA teachers who use the Reduced Class Size model and responded to the survey believe that the ratio in their classes is satisfactory. By comparison, only 62 percent of the teachers using the Augmented model and 62 percent of the teachers using an Other model felt the same way. Chart 7 shows that, across all grades, SIA teachers are more likely than non-SIA teachers to feel that the teacher to student ratio is satisfactory.

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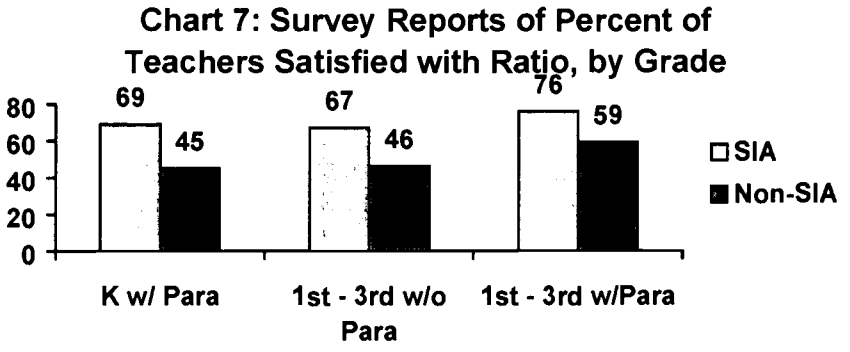

The teacher surveys show that, on average, SIA classes have significantly fewer students than non-SIA classes. Teachers in SIA classes also receive significantly more help from paraprofessionals than do their non-SIA counterparts. This extra help is most often provided in SIA classrooms using the Reduced Class Size model. This is reasonable. The Augmented model places a second teacher, rather than a paraprofessional, in the classroom. There is no significant difference in the levels of paraprofessional assistance provided in Augmented and non-SIA classrooms.

Typically, the focus group participants, survey respondents, and observation reports indicated that each school uses only one SIA model, and applies it at all grades. At observation site 81, however, the Reduced Class Size and Augmented models were used *simultaneously* in all classrooms. The result was a student to teacher ratio of about 6:1 across all four grades in which SIA is offered (K-3).

It is critical to note that the 6:1 ratio at school 81 results from having several adults (the regular teacher, the SIA teacher, and a paraprofessional) in the room at the same time. This is substantially lower than the median[5] adult to student ratio found in SIA classrooms. Generally, the adult to student ratio is lowest in SIA classrooms serving the youngest students.

Observers at school 183 found yet another variation in how SIA is implemented. Here, school personnel have designed their own program based on the needs of the students and the community. The design is a variant of the Augmented approach. At school 183, all teachers are considered to be SIA qualified, and all teachers work and plan the curriculum based on this philosophy. The observers reported that students may be grouped heterogeneously, or in small groups, or by ability level. Grouping assignments are based on students' needs at any given time, and are flexible to allow for regrouping as needed.

All of the instructional programs at school 183 - Reading First, Title I, Success in Reading and Writing, Saxon Phonics, and others - have been integrated to provide a single,

[5] The median is the "middle" number in a set of numbers. Half of the cases are above the median and half are below. Because the median is essentially determined by counting toward the middle from both ends of a distribution, it is not affected by unusually large or small numbers. Thus, it is more useful than the average, or mean, in deciding what is a "typical" value.

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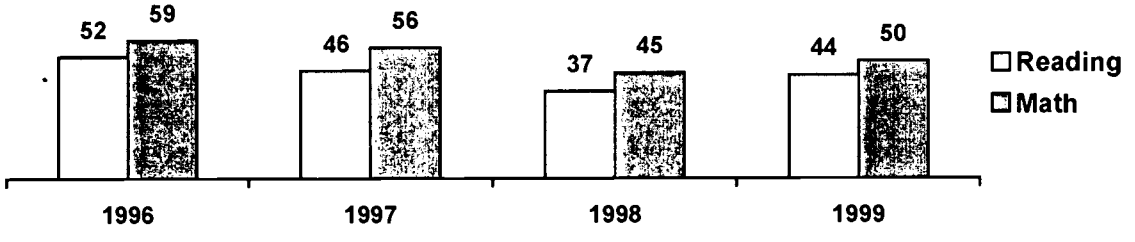
unified program of study. The curriculum is also designed to allow movement between blocks of teaching, such as language arts, reading, phonics, and math. By changing classes, groups, and teachers as needed, students are able to receive instruction that is more closely tailored to their individual needs. Through this process, the school has achieved smaller class sizes and is able to provide more individual help for its students. Class sizes at school 183 usually range from 12 to 17 students, about 10 of whom are identified as SIA students. Paraprofessionals and designated SIA teachers work with classroom teachers to further reduce the student to teacher ratio. Teachers in this school make no distinction between SIA and non-SIA students. As one teacher told the observation team, *"Everybody gets all of everything."*

A comprehensive student assessment program supports the instructional practices used at this site. Language arts assessment, basal reader assessment, and various phonics assessments are administered regularly. The BLT is administered three times a year; the ITBS is administered once a year. The Picture Peabody Assessment and other tests are also used. Additionally, one teacher has begun using portfolio assessments. (Assessment practices are more fully addressed in the Student Assessment section that begins on page 21 of this report.)

What is the net affect of the practices that were found in use at school 183? Teachers and administrators say that they are excited and pleased with their new design. They report that they are working as a team, taking full responsibility for the program's implementation and success. According to one teacher, the new design has revitalized the school. *"It has made us get off our seat and on our feet."*

How has this integrated approach, which was implemented at the start of the 1998-99 school year, affected student learning at school 183? Since 1996, when third grade ITBS scores reached their highest point in recent years, both reading and math scores had been falling. After only one year of coordinating instruction across programs, math scores rose 5 percentile points and reading scores went up 7 percentile points (Chart 8). Certainly, one year of improvement does not constitute a trend. However, this school's academic gains certainly warrant further attention as they continue along the path they have chosen.

Chart 8: ITBS 3rd Grade National Percentile Scores
Observation Site 183



**Please note that changes were made to the program's guidelines in 1998.*

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Sometimes there is a difference between the model that educators said they were using and what the observers actually found. (This helps support the theory, presented earlier in this paper, that the difference in model utilization reported in the surveys and seen by the observing teams may result from teachers being unsure about the name of the model they are using.) At school 195, the faculty told observers that the Augmented model is being used. The observation team found, however, that "the actual implementation of the model has significant variations from an augmented model as described in the literature" (quote from site summary report). The variations stem from the school's practice of having each classroom that includes SIA students move, as a whole, from the regular classroom to an "SIA area" for a part of the day. This area consists of two adjacent classrooms that are away from the regular classrooms. The SIA teacher meets every day for 50 minutes with each of the six regular classrooms. During this time the SIA teacher meets with about half of the students in the class, predominantly those who have been identified as SIA students. At the same time, the regular classroom teacher works with the remainder of the class. About half way through the 50 minute period, the groups switch, so that both groups spend about the same amount of time with both the regular teacher and the SIA teacher.

Overall, it appears that although the Augmented model seems to be more widely implemented, schools prefer the Reduced Class Size model. The preference for the Reduced Class Size model is based mainly on the ability to have lower teacher-student ratios and provide more individualized instruction. However, in many instances, funding constraints prevent schools from being able to implement the Reduced Class Size model. This issue is discussed more fully in Part V (Cost Effectiveness) of this report. The Augmented model, which allows schools to serve more students, is also favored because of the opportunity it provides for collaboration on instructional tools and strategies with the additional classroom teacher. Finally, the data show that some schools have integrated other educational programs (i.e., Title I; Reading First) with the SIA program and/or have designed alternative models that appear to be effecting student performance.

Teaching Strategies. SIA is typically used as a vehicle to enhance student development in all academic areas. Perhaps reflecting the GDOE's emphasis on reading, both SIA and regular teachers at virtually all of the observation sites reported that language/literacy development is a crucial element of the SIA program.

Focus group participants reported that the instructional strategies that are most commonly used in SIA classrooms include organizing classrooms into learning centers, teaching children in small groups, and using hands-on activities and manipulatives for instruction. Observers typically found all three of these practices being used in the schools they visited. Other instructional strategies that focus group participants mentioned included computer labs, directed reading, one-on-one teaching and phonics.

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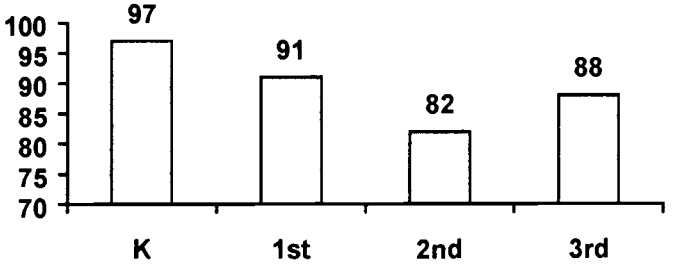
In several schools where observations occurred, SIA was used in some, but not all, classes in a particular grade (e.g., site 133, where five of seven kindergarten classes used SIA). In these cases, there usually was not much reported difference between the SIA and non-SIA classrooms.

At school 302, where SIA is used in grades K-2, observers reported considerable differences between the learning environment, classroom climate, and instructional methods and materials used in those grades and the same factors in the one third grade non-SIA class that was observed. In general, the third grade regular classroom seemed much less child-centered than did the K-2 SIA classrooms. This same relationship between SIA and regular classrooms was also found at school 295. In this case, though, the break between SIA and non-SIA occurred at the end of first grade, rather than the end of second grade. This pattern was reported in other schools as well, suggesting that the SIA program produces a grade-level, but not schoolwide, affect on instructional practice.

The extent to which learning centers are used by SIA teachers, and how they are used, also differs across the various grade levels. Even though learning centers are no longer a required element of the SIA program, they continue to be used by an overwhelming majority of kindergarten teachers. While more than 80 percent of the SIA teachers at all grade levels who responded to the teacher survey say that they use learning centers, the number does get progressively smaller across grades K-2. Chart 9 indicates the extent to which teachers at all grade levels use learning centers. [6]

Chart 9 also shows that third grade teachers are more likely to report that they use learning centers than are second grade teachers. The reasons for this are not clear.

Chart 9: Percent of SIA Teachers Using Learning Centers, by Grade Level



The theory that SIA and REP begin to converge in the upper primary grades is supported by responses to an open-ended item on the SIA Teacher Survey, where teachers were asked how they use learning centers. Their responses were grouped into five broad categories: extending and enriching material that had been taught in class; reinforcing the material that had been taught, but not extending the content; remediating deficiencies in student mastery of material that

[6] Teachers who reported that they teach SIA at more than one grade level were not included in this particular analysis. So, for example, the report for first grade teachers includes only those teachers who teach only first grade.

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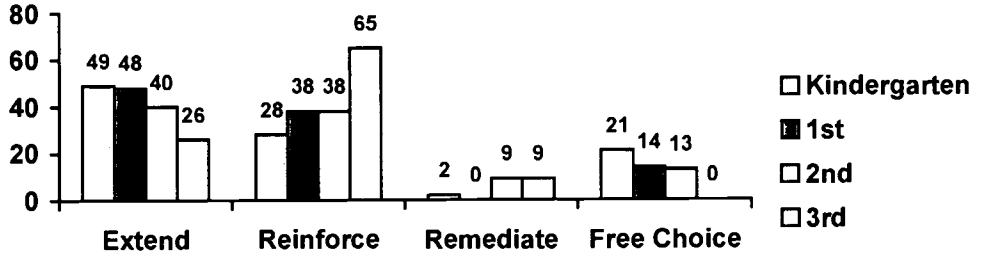
had been taught; providing free-choice or independent learning activities related to academic or social growth; and other types of uses. The responses, shown in Chart 10, suggest that as SIA students' grade level increases, the emphasis on reinforcement and remediation increases. At the same time, there is a decrease in the likelihood that teachers will use center time to either extend content or allow free-choice activities.

The SIA Teacher Survey responses also indicate that kindergarten and first grade "center time" activities strongly emphasize the development of literacy, math, and social skills. A few teachers at these grade levels also mentioned that observations of student performance during center time are considered when student assessments are made. Second and third grade SIA teachers' responses suggest that students in these grades spend far more time working in reading, math, and social studies; very few teachers include social skill development in their center time at this level. Science instruction was not reportedly a part of center time at any level. The observation reports are generally consistent with the survey self-reports.

Chart 10: Percent of SIA Teachers Using Learning Centers for Selected Purposes



Responses to the SIA Teacher Survey and the Non-SIA Teacher Survey also reveal differences in the instructional practices used by these two groups. These responses indicate that SIA teachers are more likely to incorporate a variety of activities and materials into their teaching, and that their lessons are more likely to include child-initiated activities (Charts 11 and 12). Reports from the observation teams support both of these findings. The observers further note that child-initiated activities are most likely to take place during learning center time. (Please see the preceding paragraphs and Chart 4 for a more complete discussion of how instructional practices and purposes vary across grade levels in SIA classes.) In other instances, only SIA children were pulled out to receive regular services. Those who promoted pull out designs described them as being less distracting for challenged learners than a class full of learning centers.

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Chart 11: Percent of Teachers Using Varied Teaching Activities and Materials

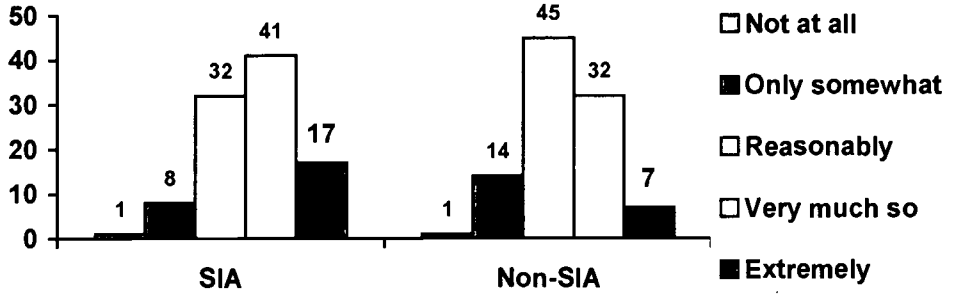
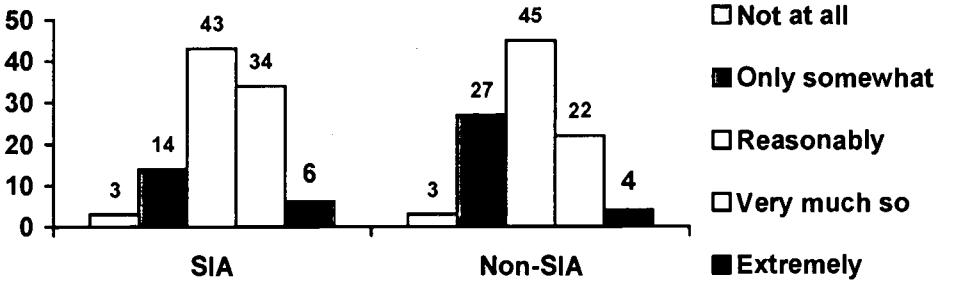


Chart 12: Percent of Teachers Using Child-Initiated Activities



At one observation site (school 263), administrators and some teachers said that too much time is mandated in the learning centers for second and third grade students.[7] Educators expressing this opinion felt that for these students, time could be more profitably spent in other activities. Other teachers in the same school felt that five hours of center time each week was appropriate, but that they (the teachers) should have the flexibility to apportion that time. In their view it would be more appropriate to allow, for example, a two hour center block one day balanced by no center time on another day. One teacher at school 263 said that the introduction of new programs requiring teacher-directed instruction had largely settled the issue. In this teacher's classroom, there simply was not enough time during the day to guarantee that there would be a full hour of center time.

In summary, it appears that the most common instructional practices used in SIA classrooms are the use of learning centers, manipulatives (hands-on activities) and small group instruction. In fact, in SIA schools, these practices are not limited to SIA classrooms; they are also typically found in non-SIA classrooms serving younger students (i.e., K and 1). Differences in instructional practices are more prominent between third grade SIA and non-SIA classrooms. In the third grade, it appears that the SIA and REP programs converge since the instructional focus shifts to remediation.

[7] Learning centers are no longer a required part of the SIA program. However, when they are used, certain minimum time standards must be met.

Student Assessment. Student assessment serves several purposes in the SIA program. Among the most obvious are placing students in the program, diagnosing their individual needs, and measuring the extent to which those needs are being met by the instructional program. All three of these functions were in abundant evidence in the surveys, the focus groups, and the on-site observations. Assessment issues relating to student placement were previously discussed in the "Student Eligibility" section of this report (pages 9-12).

Once students have been placed in SIA, a critical assessment function is determining whether their developmental delays have been remediated to the point where they are no longer eligible to receive SIA services. At some schools, particularly those using a pull-out model, being able to move a student out of the SIA program opens a space to serve another student who had been excluded from the program due to enrollment caps. In other schools, this imperative does not exist. At school 133, which only offers SIA services to kindergarten students, observers reported that students do not leave the program during the year. According to the SIA coordinator at that site, moving students out of the program would not serve any purpose because all students, SIA or not, receive identical services.

The SIA coordinator at school 133 also told observers that data to justify removing students from the program are not available until the end of the school year, when it has become a moot point. This same coordinator also noted that the school uses a variety of student assessments throughout the year: GKAP-R, Saxon Phonics, a locally developed assessment, and formal and informal teacher observations. (Recall that this school only offers SIA services to kindergartners.) The observation report does not address how the coordinator reconciles the use of multiple assessments throughout the year with a lack of performance data during the year.

At school 295, observers reported that all students are assessed annually using a locally developed SIA checklist. Here, too, students are not able to leave the SIA program during the school year.

In cases where students are moved out of SIA, regardless of whether this occurs during or between school years, the most common criteria is the reevaluation of the students using a norm-referenced test. Classroom observations also contribute to these decisions. Only rarely are children removed from SIA for behavioral problems (Chart 13).[8]

Principals and teachers generally told observers that they have multiple ways of documenting student progress in their schools. Tests of student knowledge and abilities, formal and informal teacher observations, and samples of student work, often in portfolios, were the primary methods of monitoring and evaluating student progress. Some schools, such as site 52, reported that teachers use a broad variety of assessment tools, including GKAP, ITBS, and BLT scores; county benchmarks for math and reading; teacher-developed checklists; oral assessments in phonics' lessons; daily observations; students' portfolios; quizzes, math and reading assessments; parents' assessments; ongoing records of student progress in the classroom

[8] The total on Chart 13 does not equal 100 percent due to participants ability to respond in multiple categories.

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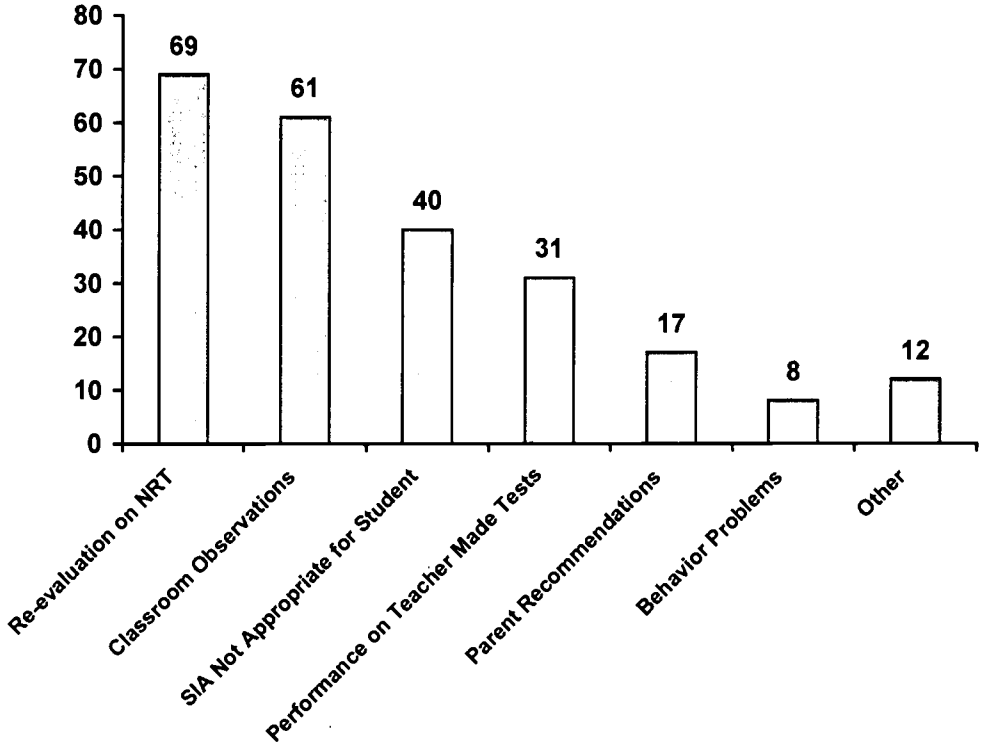
(running records); site vocabulary; and comparison of writings from the beginning of the year to examples later in the year.

Chart 13: Reasons Why Students Leave SIA by Percentages



According to field observers, teachers at school 92 had "many, many ways" of assessing student development and progress, including observation, writing samples, running records, monitoring reading strategies, generated word lists, the BLT, Accelerated Reading results, sight word lists, GKAP, portfolios, report cards, and the STAR computer program. Teachers at this school use both formal and informal methods of assessment in making instructional decisions. A running record is completed for each student every four to six weeks. One teacher reported, *"We can see the progress. Students become interested and are no longer discipline problems."*

While all schools relied on testing to measure student progress, most schools combined testing with other methods of assessment. However, at a few sites, such as school 163, the primary emphasis was on testing students. According to the observers, student progress at this school is monitored through continuous testing. Each week children take a Saxon Phonics Unit test. Unit tests with the basal reader are also administered in the first grade. The BLT is given three times yearly in both kindergarten and grade one. The ITBS is given twice yearly in grade one. The ITBS is administered to all children at the end of kindergarten to determine eligibility for the following year. The SIA teacher at this school reported that she also makes checklists to monitor phonics and site word skills. The assistant principal commented, *"We've tested so much*

here this year that the teachers haven't had time to teach." He went on to say that he thought, more often than not, they were teaching to the tests.

Several schools noted using the GKAP-R as part of the monitoring process, and personnel at school 195 indicated they were glad to be a part of the standardization of this "important diagnostic tool."

Nearly all schools reported that teacher observations were a very important, if not the most important, method of assessing student learning. Observations of student performance and progress by all personnel (classroom teachers, SIA teachers and paraprofessionals) were reported at many schools. Personnel varied in the frequency and methods of recording their observations of student progress. Teacher observations were part of the everyday activity in many classrooms, and allowed the teacher to provide immediate feedback to the individual student on their progress. Small class sizes and small group activities were cited as being important to permit this immediate assessment and feedback process. Often, an evaluation component was built into each learning center activity and the activity had to be successfully completed before the child could move on to other centers.

SIA teachers often reported using checklists, student learning logs, games, and questioning techniques, as well as discussions with the regular classroom teachers in their assessments. Teachers at several schools, i.e., school 75, maintain running records to keep a more individualized, up-to-date analysis of each child's progress. Observations at school 125 confirmed their use of a skills-based checklist during small group instruction. In addition to student progress in content areas, teachers also observed student attitudes about school and lessons, and interactions with other students and adults. Field observers at school 101 noted that in the review of documents, a number of places were included to record updates on skill checklists, and the documents referred to norm tables to be used by the teacher to measure student gains.

At school 154, the SIA teacher told observers, *"Watching student progress in reading and writing indicates that the students are learning."* A first grade teacher at another site, school 142, discussed the value of teacher observation and keeping anecdotal records. She commented, *"Yesterday in Writing Workshop this little boy was working by himself, which is unusual. When I was going around to check, he was really excited because he had written something by himself. And he really had. He'd left spaces; he used the word wall. To me that was a good example of something I could observe that might not be measured by a standardized test. And the self-awareness."*

In a number of schools, student portfolios were used to monitor student progress. These portfolios included examples of the students' work at various times of the year and across different subjects to permit comparisons of student work over time. Samples of student writing and other student products were included. Teachers reported that student portfolios were especially useful for conferences with the parents and students about their progress.

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Teachers reported using records of student progress, which include all forms of student assessment (teacher observations, tests, portfolios) in various ways. An important use of student records, as mentioned above, was to communicate with students and their parents about student progress. The records were the basis for parent/teacher conferences, report cards, and written or verbal progress reports to the parents. Teachers at school 21 stressed the value of parent input in the assessment process, making the parent/teacher conference a two-way sharing of information about a student's progress from both the home and school perspective.

The SIA teachers at school 75 keep a running record of student progress to assist when conferring with regular classroom teachers about a student. This process is designed to ensure that the SIA program is addressing the same needs that the classroom teachers saw for each SIA child. At school 232, this type of student progress information was used in regular reviews of students at grade level meetings, and more formal assessments were conducted if the teachers thought it was warranted.

At some schools, the SIA teacher gave input into report cards and progress reports. At several sites, once a child was placed in the SIA program there was no formal assessment of student progress completed by the SIA teachers. For example, at observation site 33 there was little evidence of daily evaluation of the kindergarten and first grade students who participated in the SIA class. (At this school, SIA is not offered beyond the first grade.) There was no evaluation component related to SIA activities and no method for the teacher to record student progress across learning centers. The teachers (SIA and regular classroom) were not concerned about this lack of any reporting of student progress in the SIA program, stating they were *"just glad the kids enjoyed a time of exploration without parameters."* Teachers did say they could "see" student progress. There is, however, no objective way to assess the accuracy of this perception.

Assessments are used as part of the SIA program for determining eligibility and measuring student progress and performance. In some cases, the norm-referenced test used to determine eligibility is also used to examine student's progress and determine if the student should continue in the SIA programs. However, some schools report that students typically remain in the program for the full school year. Participants reported using teacher observations, informal assessments and student's school work to examine progress. These types of assessments are often viewed as invaluable assets to the program.

Parent Involvement. Under GDOE guidelines, parent involvement is a critical component of the SIA program. Focus group participants described a wide range of activities that they provide as part of their SIA parent involvement program. Efforts that were most commonly mentioned are shown in Table 2.

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Table 2: Frequently Mentioned Parent Involvement Practices		
• outreach for teens • parent centers where GED materials and home activities to help children read are available • home-school liaisons • volunteer opportunities to help in the classroom	• special activities to encourage fathers' involvement • parent-teacher conferences • classes on topics such as nutrition and discipline • "literacy bags"[9]	• "Author Teas" or other events where children share their stories with parents • special events (Georgia Day, science fair, etc.) • make it/take it workshops

Staff at almost all of the 30 observation schools viewed parents as significant partners in the education of their children, even though this was not always actively implemented in the school's programs. Teachers and administrators reported roles for parents, both in the home and in the school, that they believed had positive impact on the student learning process. A principal at *School 142* said, "We feel successful if we have parents who are sitting home with them [students] and reading for 20 minutes at night."

Many focus group participants reported that SIA parent involvement programs typically are part of the school's larger parent involvement program. Many schools meet the SIA and Title I requirements for parent involvement in the same program. Several respondents said that the SIA requirements "drive" the school's overall parent involvement program. Those who were most enthusiastic described how their school's philosophy had changed to allow parents to become full partners in the SIA program.

A number of other schools discussed their active parent involvement programs with the field observers. For example, staff at school 44 observed: *"We have a Parenting Center. Parents can come and talk with administrators and teachers one-on-one. We have parent classes on discipline [and raising] responsible children that are held during the day and evening. Parents volunteer to read to children and to work at Book Fairs. We always try to make them feel like a part of the school. They serve as partners to us. There is a contract that parents must sign with administrators and teachers.*

The following activities were cited which involved parents: reading to children, Fall Festival, PTA/PTO, volunteering, coffee and conversation gatherings, workshops, opportunities to make instructional aids in make-it/take-it workshops, parent breakfasts and workshops, and mentoring children (reading buddies, work with small groups on a writing lesson). Parents also served on the Parent Advisory Council and Leadership Team, and participated in regular conferences with the teachers via telephone or in person.

Other schools (183, 33, 263, 52, 133) also reported ongoing parent involvement components, and additional examples of parent activities included: Donuts for Dads Day,

[9] Literacy bags are teacher-made take home materials which are customized to individual student needs.

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Muffins for Moms Day and Grandparents Day; guest speakers in class sharing their experience; yearly, and at one school, monthly Open Houses at the school; programs recognizing the achievement of students and parents; an Instructional Fair in the fall; family picnic; and grade-level programs such as talent shows.

A number of teachers sent home work the student completed at school for parents to review, as well as activities for children and parents to complete together, such as Book Bags (students take home a book for parents to read to them and to reinforce literacy skills). Ideas for home activities were suggested in the school or classroom newsletter (cooking projects, home science experiments, games, etc.). These ideas were often included in weekly or monthly newsletters from the class or school to inform parents and to involve them in activities with their children.

Several schools mentioned an "open door" policy regarding parents in the school. For example, the SIA coordinator for school 215 said, "Parents are always invited to come into the class." The majority of schools had volunteers actively working in the classrooms on a regular basis. For example, a teacher at school 224 reported that five parents normally worked with her class. At school 195, volunteers worked in all classrooms and were observed during the study.

A few of the observation schools in the sample communicated little to field observers in the way of parent involvement or school efforts to encourage parents to be active in their child's education. For example, while some parent involvement was noted at school 224, the principal expressed that parent involvement happened only when "parents perceive a problem, not when we perceive a problem." Communication and parent involvement were reportedly difficult for many parents at this and other schools as a result of poverty and other conditions in the county, i.e., home telephones being turned off, lack of transportation, no access to the local newspaper, large families, parents working, and transient populations. At school 13, there was no systematic plan for fostering parent involvement at the school. Some staff indicated that they had neither seen nor talked with any parents. The principal acknowledged this problem: *"If there is a deficit area in this system, it is lack of parental involvement."* All those interviewed at the school agreed that getting parents involved in their child's education would be beneficial. At site 75, parents were not actively involved in the SIA program or in general at the school. Parents were notified of their child's selection to SIA by a form letter. That was the only communication reported for the school year specific to SIA, and no other parent involvement in the school was reported. Finally, at school 10, teachers and administrators all said they did not have the parent involvement they would like, and were unsuccessful in getting parents to SIA meetings. One teacher complained that parents would come to PTA programs, but not to SIA meetings. Many believed that this was a problem because so many parents worked one or more jobs and were "too busy, tired, or stressed" to become full partners at the school site.

Of course, the success of efforts to involve parents is directly tied to the effectiveness of a school's efforts to communicate with those parents. Observers reported that several methods are commonly used to get information to - and from - parents. These include parent/teacher conferences, open houses, workshops, PTO meetings, and all other activities that put the parents and school staff together for either formal or informal communication.

In most cases, direct communication with parents was in written form and told about events in the school and classroom activities, updated parents on the work of the student, provided suggestions for home involvement, and outlined opportunities for parents to participate in the school. Various types of communications were observed during the review of documents related to the SIA program, including school and classroom newsletters (weekly or monthly), student progress reports, homework folders, examples of student work, report cards, notices of school events, information in the local newspapers, school activity calendars, at-home activities, book lists, recipe book, and a booklet of follow-up activities to be completed during the summer after kindergarten. The school had to rely upon the parents to read and understand these materials. In several schools, this was facilitated through both Spanish and English translations of all materials sent home. In addition to assisting school staff with communications sent home, bilingual adults working in these schools also assisted with translations of communications from the parents to the teachers.

Staff at most of the study schools described communications that were specific to the SIA program, including an initial letter to all parents about the SIA program and services to students, a letter requesting parental permission for testing, a letter to parents of all qualifying students, a SIA brochure, and student progress reports.

Parent/teacher conferences took place on a regular basis at most of the schools and occurred either in person or by telephone. Home visitations were mentioned at two schools. For example, staff at school 274 reported that occasionally home visits were made by the classroom teacher.

To summarize, parental involvement is viewed as an important part of the SIA program by both teachers and administrators. Parent involvement takes many forms from parent-teacher conferences, homework assignments, to special activities in the schools. However, in some schools, this component of the program is not as active as it should be. Given the importance of this aspect of the program, steps should be undertaken to ensure schools provide as many opportunities as possible to get parent's involved in the child's education.

Staff Development. Staff development activities offered under the SIA program are typically intended to assure that teachers, paraprofessionals, and administrators are all well prepared to meet the needs of the diverse students that they serve. Focus group participants reported that SIA-funded staff development opportunities are generally open to everyone in the school including SIA and non-SIA personnel. Only one focus group had participants who said that these events were restricted to SIA teachers. At the majority of schools that participated in the on-site observations, staff reported that both SIA and non-SIA teachers had similar access to staff development opportunities.

Despite the report that SIA activities are reportedly available to both teachers and paraprofessionals, the surveys indicate that teachers are far more likely to participate in these sessions. Forty percent of SIA teachers reported that they had attended a workshop for the SIA program in the last 12 months, as opposed to only 16 percent of SIA paraprofessionals (Chart 14).

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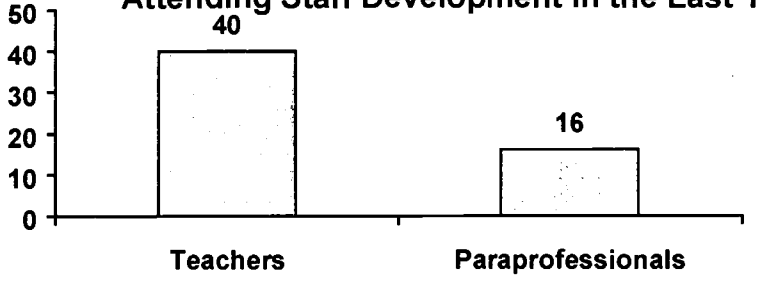
Paraprofessionals were reported to participate in staff development in only four of the thirty observation schools (13 percent). Most other school reports did not mention paraprofessionals in relation to staff development; however, a few specifically reported they were not included. For example, at schools 215 and 142, paraprofessionals received training related to technology, including Internet access. At school 142, paraprofessionals requested and received training in CPR, and those at school 81 were invited to participate in a wide variety of staff development available to the teachers. A paraprofessional working at school 92 indicated that support staff were not provided staff development. She reported, *"We've gotten away from staff development for paraprofessionals."* However, she does recall taking courses from the RESA in previous years.

Chart 14: Percent of SIA Survey Respondents Attending Staff Development in the Last Year



According to SIA teachers responding to the survey, SIA in-service training covers a wide range of topics. Using manipulatives, developing learning centers, and developing alternative teaching strategies were cited as the most frequently offered topics. Mainstreaming students and recent research in teaching special education were mentioned least often (Chart 15, page 29). However, analysis of the responses of non-SIA teachers to a similar question showed that there is no statistically significant difference between the percent of SIA and non-SIA teachers who report having received training in these areas.

In many cases, activities at the schools were reported, such as regular grade-level meetings to share strategies and literacy topics, and special workshops which were presented by school personnel after faculty meetings. These occurred in many sites weekly or twice a month. Staff mentioned visiting other schools, both in and out of the county, to get ideas and information to help in the classroom. At one school, a math specialist came into the classroom to model developmentally appropriate techniques.

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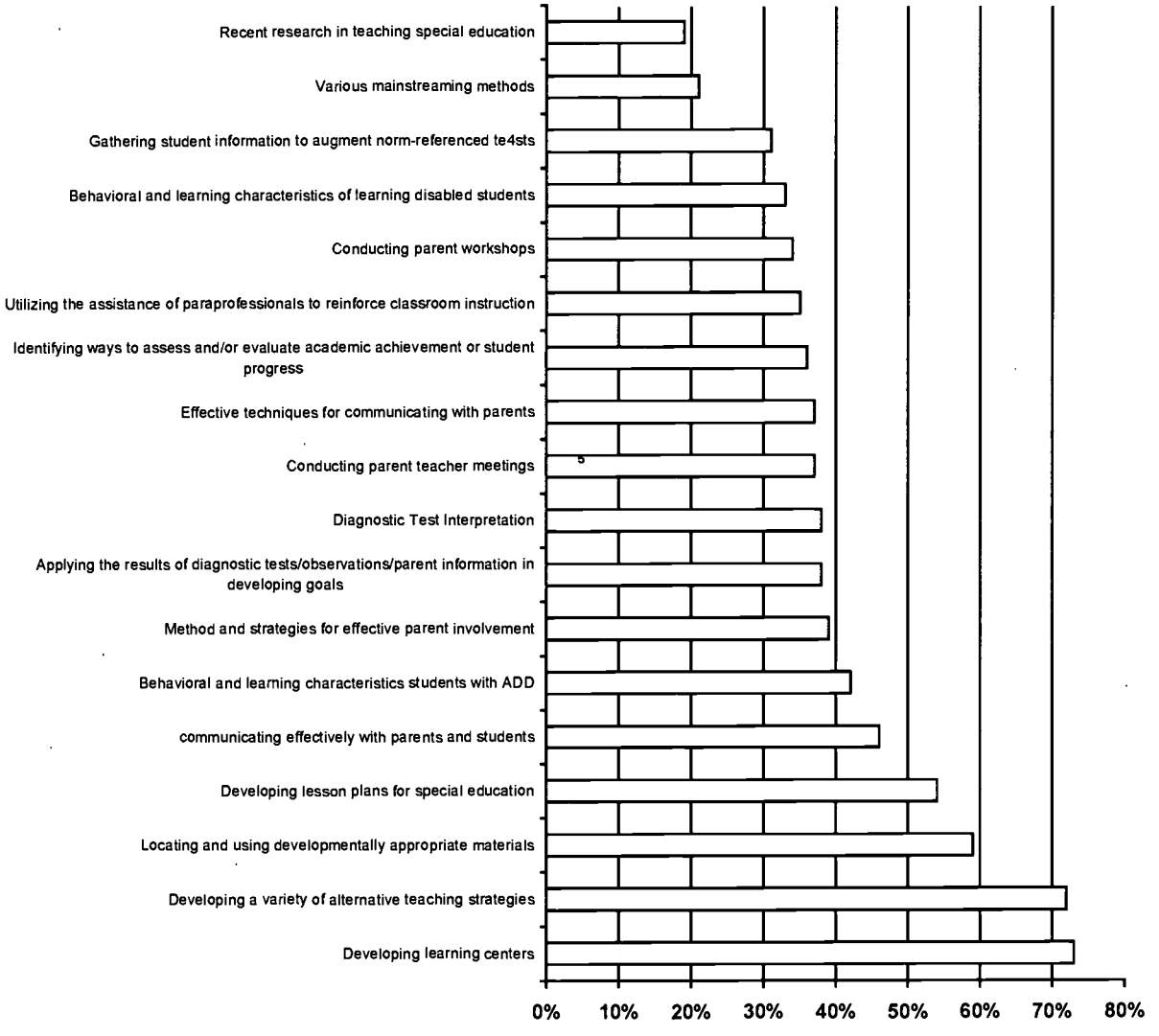
Chart 15: Percent of Teachers Stating That They Have Received Training in the Last 12 Months in Different Areas



While most of the time teachers were free to make staff development choices, schools required training for all faculty when implementing a new curriculum. For example, a teacher at school 21 stated, "*We're expected to attend staff development on anything new like this year's science and updated methods of presenting and using technology in the classroom and lab.*"

Staff development specific to the SIA program was provided at a number of the observation sites through school-level in-service programs and meetings. Several schools held a schoolwide orientation on the SIA program for all faculty in the fall. For example, one SIA teacher at school 75 provided an after-school in-service for SIA classroom teachers which included planning for the upcoming year. The principal at this school allocated overtime pay to insure 100 percent attendance.

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While the observations were being conducted, staff at school 302 were planning a retreat designed to encourage coordination and cooperation between the classroom teachers and SIA teachers. These teachers, when asked about the level of cooperation in the program, reported working closely with the classroom teacher, and that they met one or two evenings per week to plan because they had no shared planning time. Teachers at several other schools reported regular after-school meetings to share ideas and strategies.

A number of SIA teachers, especially those with a designated SIA coordinator at the county level, received instruction and support specific to the SIA program. For example, the SIA teacher at school 163 met four times a year with other SIA teachers in the county, and valued the "peer support" these meetings provided. The SIA coordinator serving school 241 held quarterly meetings with the SIA teachers in the county to provide updated information and to address concerns. Although there was no specific SIA training at school 52, the assistant superintendent held a meeting at the beginning of the school year during a countywide in-service day for every teacher involved in SIA. At this meeting state guidelines were reviewed, and questions were answered.

In another example, the SIA coordinator for the district that includes school 232 was reported to provide SIA staff with various kinds of professional development opportunities throughout the school year. The coordinator was the point of contact with SIA staff for questions, concerns, or ideas. The SIA teachers in the district met occasionally; however, segregation of SIA teachers from other teachers in the building was reported to be minimal. Teachers noted that they shared materials, unit ideas, and met regularly in grade level teams. The SIA coordinator viewed the staff development opportunities available to SIA teachers as critical to delivering instruction and organizing classrooms that reflected the program goals and principals. According to the SIA coordinator, these opportunities had the additional potential of bringing ideas and teacher initiatives into the building for broader consideration and adoption.

Personnel at many other observation schools indicated that there was no staff development specific to the SIA program. For example, faculty at school 133 reported there was no training for SIA teachers or classroom teachers regarding specific SIA requirement, policies, methods, literacy/language development, centers, or other related topics. A teacher at school 13 said, *"There is a need for more staff development so all teachers will have a better understanding of SIA. There is no staff development support for the SIA program."*

While there was no staff development provided specifically for SIA teachers at school 125, all teachers participated in a weekly faculty meeting where teaching strategies and literacy topics were presented. It also appeared that SIA teachers participated in the staff development offered to all teachers, which in many cases focused on topics related to the SIA program, such as literacy and working with students with developmental delays.

The quality and quantity of the workshops that are offered seem to vary widely. Some focus group participants reported that activities occur monthly; others said they occur as infrequently as twice a year. Considerable diversity in the amount of time spent on particular topics was also reported. Some activities provided sustained work on a single topic, while others

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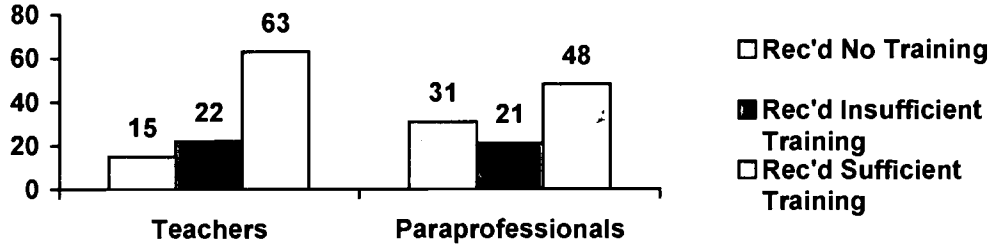
offered only brief, episodic introductions to a variety of issues. Despite these differences, about two-thirds of SIA teachers and nearly half of SIA paraprofessionals believe that they have received sufficient in-service training (Chart 16).

Chart 16: Survey Respondents' Perception of Adequacy of Training by Percentage



Other Issues. In addition to the findings presented previously, the focus groups, observations and surveys also produced information in some other areas. Typically, these discussions revolved around program administration issues.

Most of the focus group respondents felt that the SIA application was relatively simple and user friendly. Teachers disliked the application process more than did administrators. On a one to five scale, with one being very dissatisfied and five being very satisfied, the average rating was 3.4 of the application process among all respondents. Administrators found the application simple to submit and to change as needed. There were a few concerns expressed about the timeline for completion. Some respondents said that they have too little time to gather data, plan, and secure Board approval. Also, the numbers of students on which to base the program are frequently estimated.

There were far more concerns expressed about the reporting procedures. On the same five point scale described previously, the average satisfaction rating was 3.3 for reporting procedures among all respondents and the average was 2.6 among teachers.

Part III: SIA and Student Academic Achievement

In both the focus groups and the observations, teachers and administrators were overwhelmingly positive about the SIA program. In the words of the principal at one observation site, the program lessens the gap between the "haves" - in the principal's definition, students who have books in their home - and the "have nots" - students whose parents are more concerned with providing the basics of food and shelter.

The surveys, observations, and focus groups all uncovered wide variation in the way the effectiveness of SIA programs are evaluated at the school and district level. Most teachers reported that they administer student assessment measures such as ITBS, skills checklists, individual reading inventories, and other paper and pencil tests. They then use the aggregated results as indicators of program effectiveness. (Given the dissimilarity of many of these assessments, the aggregation of scores tends to be quite informal.)

Differences in the ways that school and districts assess SIA program effectiveness present a considerable challenge in conducting a statewide evaluation of the program. Variations in the instruments schools use to assess student performance in the SIA program make it particularly difficult to obtain a statewide measure of academic performance. In an effort to provide a measure of student academic achievement that is uniform across Georgia, this evaluation uses data from the statewide student assessment program to measure student learning. At present, these data are very limited; only third grade ITBS scores are available to measure the impact of SIA. Consequently, the second evaluation question, "Is the academic performance of SIA students on par with the academic performance of non-SIA students?," is addressed by looking at differences in student scores as a function of participation in the SIA program, the number of years they spent in SIA and/or other early elementary school academic interventions (principally Title I and remedial education).

Data Sources

Data were gathered from a sample of 184 schools across of the state to examine student achievement. Three information sources were used to obtain information: individual schools, Georgia's Student Information System, and Riverside Publishing, publishers of the ITBS. Data were obtained on 15,460 SIA and non-SIA students and included SIA program enrollment for the last four years (1995 through 1999) as well as enrollment in other educational programs.[10]

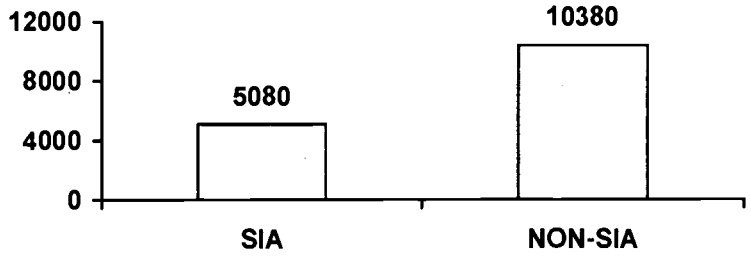
To assess achievement, this evaluation examined ITBS scores with respect to three factors: the extent to which students' ITBS scores varied by enrollment in the SIA program, length of time spent in the program, and enrollment in other compensatory education and/or intervention programs. Demographic information on the students who were included in the sample is also presented. Specific details about the data collection methodology and analysis are contained in this report and identified as Appendix A.

[10] The non-SIA students in this study are all of the students in the sample schools that were not designated as SIA.

Demographics of the Student Population

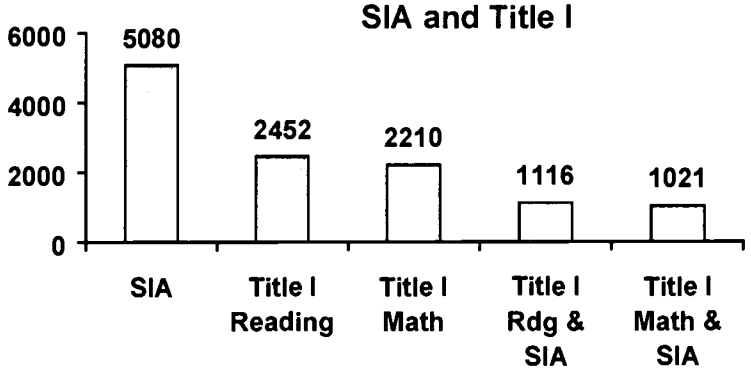
Of the 15,460 students, approximately 33 percent (5080) had been enrolled in SIA for at least one year. To this end, the sample closely reflects state guidelines that indicate that no more than 35 percent of a school's kindergarten children, and no more than 30 percent of the students in grades one through three, can be enrolled in the SIA program. Chart 17 contains the number of SIA and non-SIA in the sample.

Chart 17: SIA and Non-SIA Students in the Sample



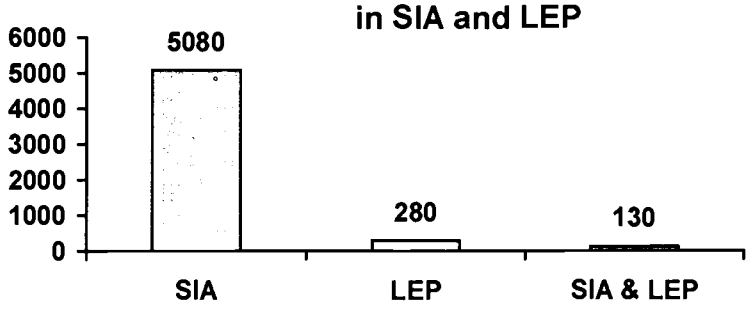
Nearly 16 percent (2452) of the total sample (15,460) were enrolled in Title I reading; approximately half (1116) of the Title I reading students (46 percent) were also enrolled in the SIA program. Similarly, 14 percent (2210) of the total sample were enrolled in the Title I math program. Forty-six percent (1021) of these students were also enrolled in SIA (Chart 18).

Chart 18: Number of Students Enrolled in SIA and Title I



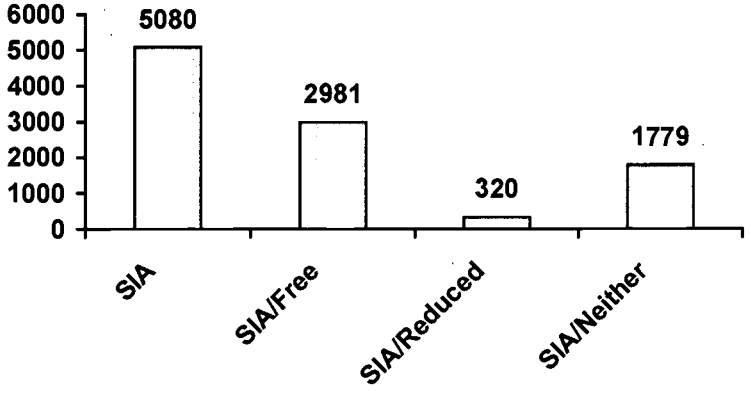
Approximately 2 percent (280) of the total sample were labeled LEP (Limited English Proficiency). Of the 280 LEP students, 47 percent (130) were also in the SIA program. These data are presented in Chart 19.

Chart 19: Number of Students Enrolled in SIA and LEP



More than half (2981) of the 5080 SIA students were eligible to receive free lunch, 6 percent (320) received reduced lunch and the remaining 35 percent (1779) of SIA students were not eligible for either free or reduced lunch (Chart 20).

Chart 20: Number of SIA Students Eligible for Free/Reduced Lunch



The data presented previously show that although SIA students only made up 33 percent of the total sample, a disproportionate number were also enrolled in other educational programs. Since SIA students are more likely to need additional assistance than students who are not identified with developmental delays, this type of pattern is to be expected.

Student Academic Achievement and SIA Participation

In comparing the overall achievement of SIA and non-SIA students, the data show that there is an achievement gap between the two groups. Non-SIA students outscored their SIA peers on both the reading and math portions of the ITBS in both 1997 and 1998. Given the academic needs of SIA students, this difference would be expected.

The achievement data from the 30 observation sites suggest that the more time a student spends in the SIA program, the lower s/he scores on the reading and math portions of the ITBS (Charts 21 and 22). Specifically, students who were in the SIA program for four years (grades K-3) scored lowest on both portions of the ITBS. This finding must be tempered by the fact that most of the observation schools only had the program in the lower grades. Even so, it is not at all surprising, and does not suggest that SIA is an ineffective program. It is reasonable to expect that students most in need of remediation will spend the most time in the SIA program and therefore, are more likely to do less well than their non-SIA peers.

Chart 21: ITBS Developmental Standard Scores by Program Length

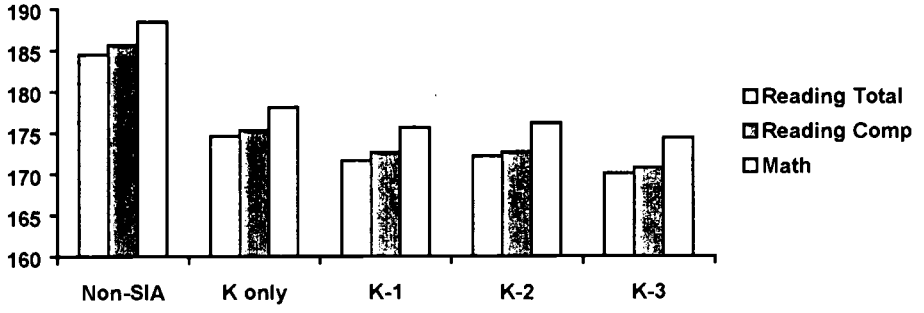
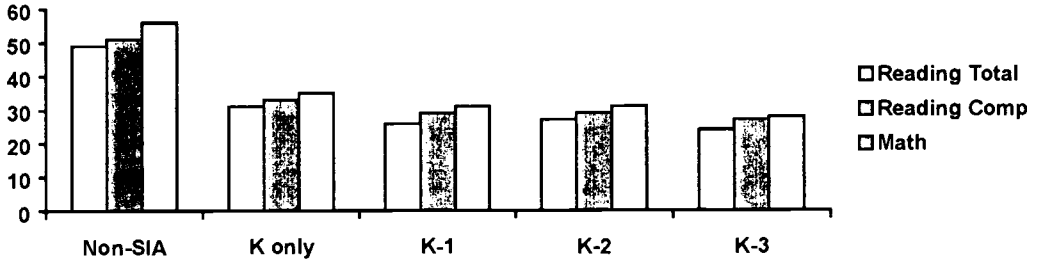
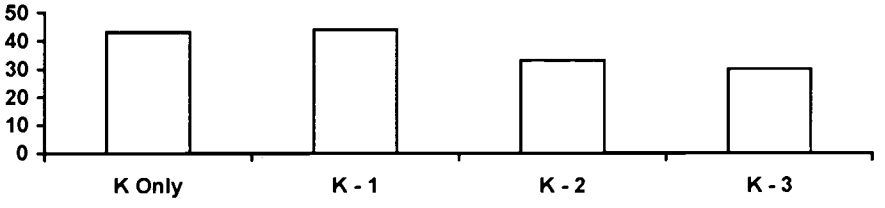


Chart 22: ITBS National Percentile Rankings by Program Length



The theory that SIA becomes more effective when it is taught for a longer period of time is supported by the percent of students scoring at or below the 30th percentile on the third grade ITBS reading comprehension test. At the observation sites, both the mean and median number of students scoring at or below this threshold decreases as the length of the program increases (Chart 23).

Chart 23: Median Percent of Students at or Below 30th Percentile, by SIA Program Length



In addition to showing a decline in the number of students at or below the 30th percentile, Chart 23 also shows that the largest decrease is produced by offering SIA for three years rather than only two years. The additional decrease that results from also offering the program in the third grade is minimal. This finding, combined with the finding that third grade SIA instruction tends to be more remedial than preventative (see Teaching Strategies section beginning on page 18 of this report) suggests it may be worthwhile to consider mandating that SIA be offered in grades K-2, dropping it from third grade classrooms and alotting those resources to the K-2 classrooms.

In interpreting Chart 23, it is important to consider the effect that district wealth might have on SIA program length. Given that students from lower socio-economic status families (as measured by receipt of free or reduced price lunch) are traditionally likely to have lower ITBS scores, it is reasonable to wonder whether less wealthy systems (those with the greatest percentage of students receiving free or reduced price lunch) are more likely to offer SIA for a fewer number of years. The data strongly show that this is not the case, at least at the observation sites. There is no statistically significant relationship between the number of years SIA is offered and the percent of students receiving free/reduced price lunch ($r = -.214$, $p = .265$). Of course, the very small number of cases ($n = 30$) makes it less likely that the difference would be statistically significant. However, the negative value found in this calculation further argues against the claim that poorer schools offer SIA for shorter periods of time. This negative value suggests that, if anything, poorer districts offer SIA for a greater number of years than do wealthier districts.

Data collected from the 184 survey sites also suggest that SIA is most effective as a K-2 program. With this larger sample (as compared to the 30 sites participating in the observation study), where statistically significant differences are meaningful, ITBS reading total scores are significantly lower in schools that offer the program for one or two years (K-1) than they are at schools where SIA is offered for three or four years (K-2, K-3). Math total scores are also significantly lower when the program is only offered in the first two years (Chart 24). This suggests that programs that only operate for one or two years may not sufficiently address many students' developmental delays. The decrease in scores at sites with four-year programs, while interesting, is not statistically significant.

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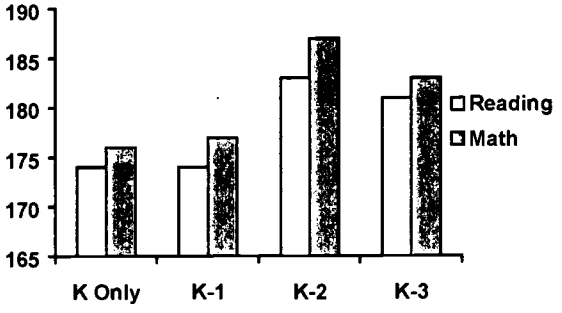
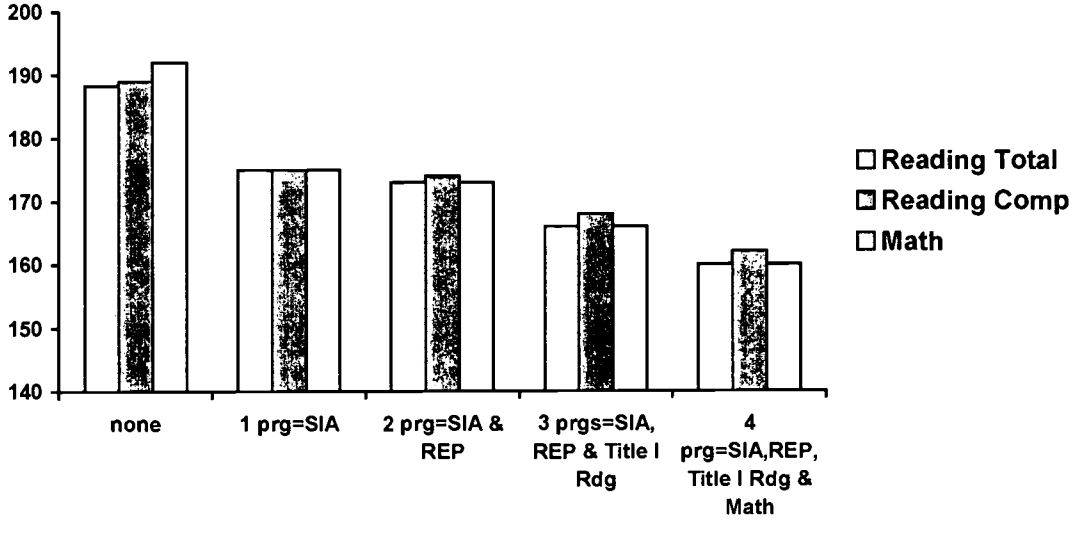
Chart 24: ITBS Reading and Math Standard Scores, by Program Length



Relationship Between SIA and Other Educational Programs

To what extent is SIA enhanced by, and to what extent does it enable, other education initiatives? This point is also discussed in Part V of this report. However, some data are available to suggest that the more "special" programs that serve a child, the lower the child's ITBS scores will be. For example, when the data on enrollment in SIA and other programs, specifically REP and Title I, were examined, results suggests that the more compensatory programs a student participated in, the lower the ITBS scores were in both reading and math (Chart 25). This seems reasonable; students who are served by multiple programs are more likely to have a larger number of factors that place them at-risk of experiencing academic difficulties. Even so, the magnitude of the difference, which again shows that enrollment in more programs produces poorer performance, may suggest that, rather than complimenting one another, the various programs are at best disconnected from one another.

Chart 25: ITBS Scores by Enrollment in Other Programs



Some focus group participants saw a positive relationship between SIA and other early childhood and primary grade interventions, particularly the Pre-K program. At school 133, teachers explained to observers that the Pre-K program has resulted in an increase in the level of social skills that children bring with them when they enter kindergarten. Consequently, these teachers said, kindergarten students are able to move more rapidly to studying academic topics. In the teachers' view, this necessitates a SIA-type of program that can provide the resources needed to help catch children who have not participated in Pre-K and might otherwise "fall through the cracks."

At another school, site 101, concern was voiced about the fact that Pre-K programs are teaching what has traditionally been considered Kindergarten curriculum. The curriculum is being "pushed down" and those coming to school without Pre-K experience will be further behind.

To summarize, the data suggest that as the number of other educational services (i.e., Title I, REP) a student receives (in addition to SIA) increase, the lower the student's scores on the ITBS. It is likely that these are the students who have the greatest academic needs. Additionally, data from the observations and focus groups suggest that students who are enrolled in a Pre-K program enter kindergarten better prepared than non-Pre-K students. SIA or a similar intervention may be needed for non-SIA students to bring them "up to speed."

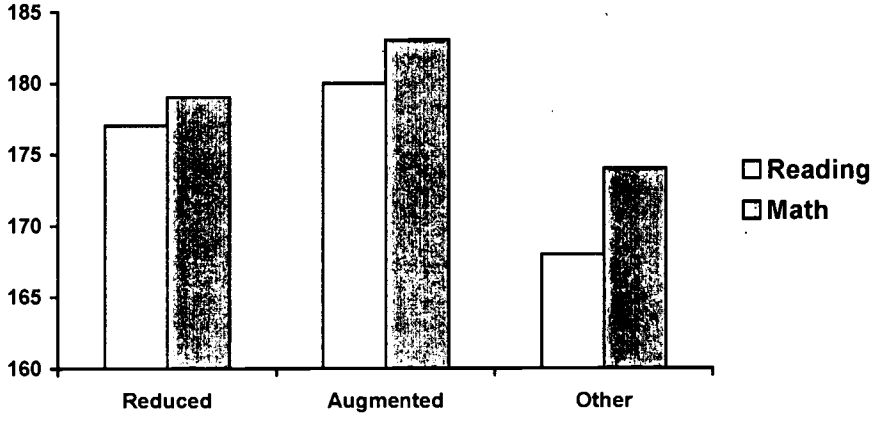
Part IV: Comparison of SIA Delivery Models

In the preceding section of this report, data from 184 schools were analyzed to give an overview of the impact of the SIA program, by itself and in conjunction with other programs, on students' academic achievement. At 30 randomly selected schools (some of which were in the set of 184), additional data were collected to allow a more in-depth analysis of the SIA program. These data suggest that the model used to deliver SIA in a school may well be a factor in students' academic performance in at least two ways.

Program Model

The SIA model that is used in a school appears to be associated with student academic success in math. Although the type of model did not seem to affect reading scores, math scores were significantly higher under the Augmented model. This means that students performed significantly better when they received math instruction with two adults (the regular teacher and the SIA teacher) in the room, rather than in a smaller class with only one teacher. The "Other" category produced reading and math scores that were significantly lower than either the Reduced or Augmented models (Chart 26).

Chart 26: ITBS Reading and Math Standard Scores, by SIA Model



The choice of the Augmented or Reduced Class Size model had only a slight effect on the student to adult ratio in the 30 observation schools. In both cases, the median number of students per adult was 10. (That is, half of the sites had more than 10 students per adult, and half had fewer.) However, the average ratio was 11:1 in Reduced Class Size classrooms, as opposed to 9:1 under the Augmented model. It is important to note that these ratios represent the number of students per adult in the classroom, as opposed to the actual student to teacher ratio. This is due to the fact that paraprofessionals are also included in the ratio. The actual number of students per *teacher* would be higher than what is reported here.

SIA in Low Socio-Economic Schools

Given the differences in test scores that appear to be associated with the number of years that SIA is offered and the type of model that is used, it seems useful to look at how the program is most commonly offered to students who are, as a general rule, most likely to need instructional intervention: those that come from a lower socio-economic background. Using student receipt of free or reduced price lunch as a proxy for socio-economic status (SES) and analyzing the data from the 30 observation sites, it appears that when the Augmented model is chosen, it is used equally in both higher and lower SES schools. However, the Reduced Class Size model is used far more frequently in the lower SES schools than in the others (Chart 27). Also, students in lower SES schools are somewhat more likely to participate in a program that lasts two years rather than three years. However, these same students are more likely to have an opportunity for four years of SIA intervention, and less likely to only have a one-year program, than are their peers at higher SES schools. This supports the previous assertion that children in lower SES schools are more likely to have the SIA program available to them for a longer period of years (Chart 28).

Chart 27: Percent of Students Taught Using SIA Models, by SES Level

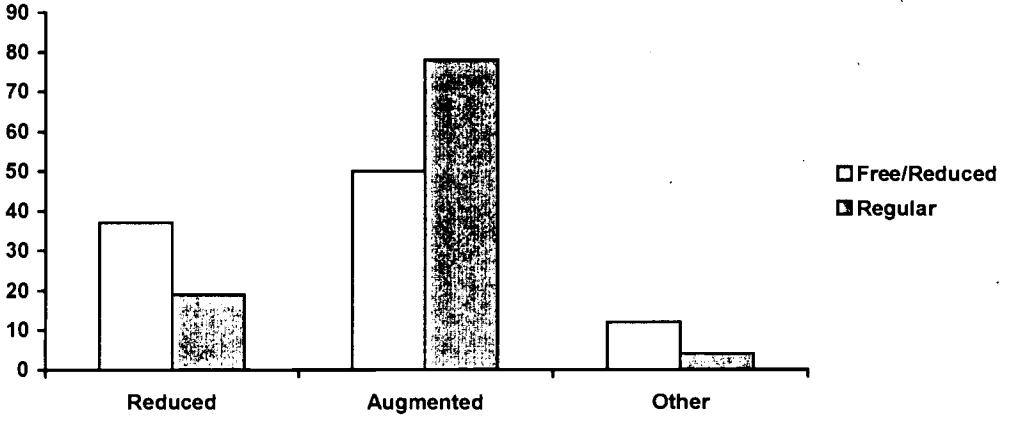
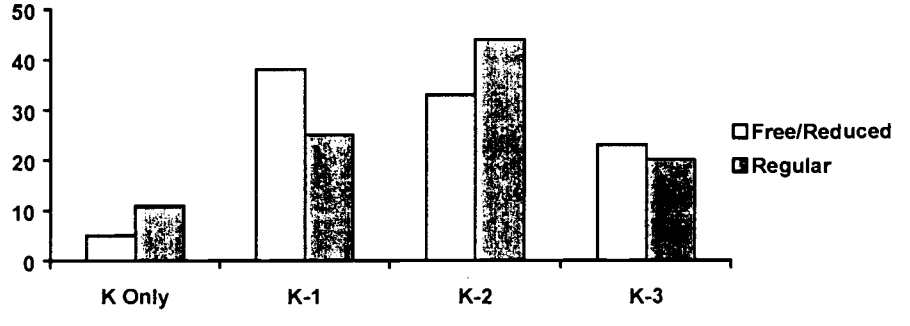


Chart 28: Percent of Students Taught Using Varying Lengths of SIA Program by SES Level



The analysis of the reading and math scores by model suggests that what works for reading – using either the reduced or augmented model - may not work best for math. A finding of this evaluation, then, is that educators and education policy makers should consider requiring that all SIA services be provided through the Augmented model, or that the Reduced Class Size model be used only during reading instruction.

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Part V: Cost Effectiveness of the SIA Program

The cost effectiveness component of the SIA evaluation was conducted by Augenblick and Meyers, Inc. (A & M) of Denver, Colorado, under a contract with the GDOE. The contract was awarded as a result of a competitive process that was jointly conducted by the DOAS and the GDOE.

This section of the report presents A & M's findings. It is important to note that the recommendations provided at the end of this section are A & M's recommendations, not those of the GDOE. A final set of recommendations made by GDOE, which takes into account the data provided by A & M, are provided in Section VI (Major Findings) of this report. In addition, Appendix G contains charts which show SIA enrollment figures for the last five years, the state's share of SIA program costs and the state's per pupil allocation for the SIA program. Appendix F provides a review of what research has found on the cost and benefits of other early childhood education interventions.

Summary of Findings

Summarized below are the key findings from A & M's discussions with SIA practitioners, school and system senior administrators, and the expert panel (see Appendix A for a description of the cost effectiveness methodology). These findings address program details and implementation strategies that have cost implications, present professional judgements and credible evidence of SIA program benefits, and provide information about SIA policies that either reduce or contribute to schools' satisfaction with, and effective implementation of, needed program services for K-3 pupils.

SIA Program Start-up or Expansion. Initial program startup requires a school system to "seed" the first-year operations in each school seeking to institute an SIA program -- and state support for the program remains forward-funded throughout a school's participation in SIA. This means that the system/county pays for 100 percent of startup costs in its schools' SIA kindergarten classrooms for year one, and then the state allocation covering those students served (as of the October 1 FTE count for year one) is received in monthly installments during year two. During year two, schools may expand the program into grade one for eligible pupils, and continue extending services upward one grade per year through grade three -- assuming the individual schools and the county system wish to do so *and* the state's SIA allocation sufficiently supports such expansion.

For high-poverty systems, districts experiencing rapid enrollment growth, and those where taxpayers are already suffering from heavy tax burdens, seeding the SIA program poses a major obstacle. Expanding the program upward to serve additional grades beyond kindergarten is even more difficult, given the forward-funding nature of the revenue stream. In conversations with systems not receiving SIA funds, an inability to seed the first year was the most frequently offered reason why their schools have not instituted the program and applied for the state funding. Conversations with systems that provide SIA services only at the kindergarten level

agreed that forward-funding is the major hurdle they face. In fact, nearly every system raised that issue, including those SIA systems represented on the expert panel.

Other issues accompanied the lack-of-seed-funds/forward-funding explanations of non-SIA systems. Several administrators indicated that SIA rules/regulations are simply too prescriptive to make adopting the program worthwhile and too complex for busy school and system administrators to implement. A few cited philosophical and/or pedagogical differences between local school staff, administrators, or parents and the vision for early childhood education reflected in the SIA legislation. Specifically mentioned were the program's emphasis on developmentally appropriate, child-centered practices like learning centers rather than the more traditional academic, teacher-directed approach, and the program's emphasis on heterogeneous classes versus local preferences for homogeneous (ability) grouping based on pupils' reading and math performance. One system noted that instead of SIA, they are implementing "Success for All" (a whole-school reform model that focuses on early reading), which is, in part, made possible by utilizing federal Title I schoolwide funds; that system administrator wondered why SIA funds would not be applicable to this research-based approach that has been proven effective elsewhere in the nation and which has so much in common philosophically with the SIA approach. However, fiscal constraints (relating both to seeding the program and maintaining the level of staffing required under any of the SIA models), more than philosophical differences, were the primary reason for non-participation.

Whether initiating a new SIA program or expanding an existing one into additional classrooms or grades, all or some of the following non-recurring costs may be required, depending upon the SIA model being implemented:

- Finding appropriate space, making necessary facilities renovations, and providing age learning-appropriate furnishings, equipment, and technology.
- Securing developmentally appropriate instructional materials and supplies (typically, this means setting up learning centers).
- Recruiting qualified SIA staff (teachers, para-professionals, etc.).

Recurring program costs, irrespective of which SIA model is employed, include the following:

- Salaries and benefits for staff.
- Professional development for staff.
- Parent involvement activities and related communication/outreach efforts.
- Consumable materials/supplies.

- Transportation and admission fees for field trips and other experiential learning opportunities (optional, but commonly regarded as an important learning strategy for SIA pupils).

Choice of SIA Model. Study participants made it clear that "choice" of an SIA model is largely a matter of arithmetic and available classroom space. Where the numbers of eligible pupils are too low to generate sufficient state funding to cover the additional staffing required for the reduced-class-size model (and where other sources of funding, such as federal Title I funds or local revenues, are unavailable or cannot be applied to make class-size reduction feasible), schools have little recourse but to offer the augmented teacher approach. If the building has sufficient space, augmented teachers may be housed in separate SIA rooms or lab-like settings where pull-out instruction for small, heterogeneous groups of SIA-eligible and non-eligible pupils can take place, during which period of time regular classroom teachers may also be providing similar reading-intensive instruction to those pupils left behind. Where extra space is unavailable, augmented teachers enter the regular classrooms to work with small groups of SIA-eligible and non-eligible pupils. In some schools that follow the augmented-teacher model, even when extra space is available, the school staff are philosophically committed to regular in-class delivery of services.

Without exception, study participants expressed strong satisfaction with the SIA models currently being implemented in their schools. Even in schools where both reduced-class-size and augmented-teacher approaches were in operation, there was seemingly equal satisfaction with both models. Only after considerable prodding were interviewees from augmented schools willing to admit that if additional space and money were to become available, their schools *might* consider switching to a reduced class-size model, at least in certain grades or classrooms. Space and funding concerns aside, it seems likely that school culture supports and helps institutionalize SIA practices.

Whatever the model or the underlying reasons for its selection, the net effect is substantial class-size reduction and a heightened focus on reading (sometimes integrated with writing and the other core academic subjects) for at least some portion of the day. Moreover, quite aside from any academic gains that might result from smaller class size, all study participants were adamant that the closer, more individualized attention pupils enjoy greatly contributes to the healthy social development of the at-risk child — and that closer teacher-pupil relationships are more readily fostered in reduced-class-size settings. Small classes, they believe, even if only for part of the school day, ensure that teachers: (1) routinely have both the time and one-on-one opportunity to establish warm, nurturing bonds with each pupil; (2) successfully engage pupils in the learning process and sustain their long-term motivation; and (3) intervene more quickly and effectively when pupils experience personal or academic problems. Especially for developmentally delayed and other at-risk children, it is argued, close teacher-pupil relationships are critical.

Georgia's Changing Pupil Demographics. Study participants, especially those from metropolitan Atlanta, reported very high pupil mobility, particularly among the greatest at-risk children, as well as net enrollment growth of up to 100 pupils per year at some schools. This is hardly surprising, given the 1990-98 population growth figures recently released by the U.S. Census Bureau (reported in the *Atlanta Journal-Constitution*, December 17, 1999), which show explosive growth in the 20-county Atlanta area as well as growth rates outpacing the national average in several of the state's other regions.

With some participants' schools experiencing transiency rates approaching 50 percent during the school year and the added pressures of enrollment growth, many schools are struggling to find adequate classroom space, afford qualified teachers in numbers that keep class size at reasonable levels, and meet the need to expand SIA services (as well as Title I, ESOL, and REP services) to increasing numbers of increasingly needy pupils. Clearly, the instructional challenges described by study participants are formidable, and they view efforts supported by SIA funding as essential but increasingly insufficient. Indeed, the message that "SIA is great, but we need more" was uniformly present throughout A & M's interviews with SIA practitioners and school system administrators.

Assessment and Reporting Practices. Discussions with study participants echoed sentiments expressed in this report. Primarily, these include: (1) concern over the low reliability and other negative effects of testing young children below third grade; (2) desirability of relying more heavily upon teachers and parents for the identification of developmentally delayed pupils than on norm-referenced testing; (3) fear that most norm-referenced tests (including the mandatory third grade ITBS) are not aligned with Georgia schools' curriculum and especially do not reflect what SIA teachers are focusing on; (4) frustration over SIA cutoff scores, since most pupils just above the cutoff point require continuing services if they are to progress, and others who "graduate" from SIA typically also require additional intervention from time to time; and (5) allegations that the combined testing requirements of SIA, Title I, REP, ITBS, and so on, detract severely from instructional time, do not contribute to improved teaching and learning any more than what classroom teachers know from their own formal and informal observations of pupils' in-class performance, and are potentially injurious to the developing child's self-esteem, resiliency, and motivation to achieve during the primary school years.

Among the more serious shortcomings that surfaced during A & M's interviews and review of SIA documentation are the following:

> *SIA practitioners firmly believe that test scores of pupils receiving their services for a sufficient amount of time (though they left unspecified what that time span should be — a year, two years, or three years) improve as a result of this early intervention program. Yet the evidence they submit annually to GDOE only weakly supports those claims.*

Using a sample (from Atlanta City and Cobb County) of the kind of gain score information school systems typically forward to GDOE, it seems clear that first grade gains far outpaced the gains made by second and third grade students (this is to be expected, however,

inasmuch as not all entering first graders have had formal kindergarten and/or pre-school experience). Also, schools in which students achieved large gains in 1997-98 generally also showed similar gains in 1998-99, though SIA services for grade three were not offered in 1998-99.

Regrettably, the Atlanta City data provide little information supporting SIA student gains at grade three. In fact, the system's third grade SIA program was terminated at the end of the 1997-98 school year due to dissatisfaction with classroom implementation by teachers. By 1998-99, only some 74 school districts (or 43 percent of systems receiving SIA funds) still operated programs at grade three. Aside from financial reasons, participants attributed this to teachers' perceptions that third grade instruction should be more academically oriented rather than the child-centered, developmental approach promoted by SIA.

Far more informative are the results charted for Cobb County, which are based on the district's own research efforts to disaggregate kindergarten results on the Developmental Skills Checklist for the purposes of comparing pre/posttest gains of students receiving SIA services with gains of their non-SIA peers. Although we received only disaggregated kindergarten scores (these scores were provided by the district and are not routinely provided to GDOE), the SIA student gains looked promising. For example, Acworth kindergartners receiving SIA services had an average pretest score of 58 correct items, and their posttest score was 105, making an overall gain of 47 points. Their non-SIA peers gained only 31 points, but because they started out higher (at 93), their posttest score was 124. In other words, Acworth succeeded, on average, in narrowing the achievement gap between SIA and non-SIA students — from a 35-point difference in fall 1998 to only a 19-point difference by spring 1999. While results varied from one school to the next, these results show that all Cobb County schools were not only able to prevent the achievement gap among kindergartners from growing, but also they all succeeded in actually narrowing the gap.

However, the effectiveness data required of school systems annually by GDOE tell little about the pupils whose scores are represented —the data do not indicate how long they have been served by SIA, what other kinds of instructional assistance they may have received (e.g., Title I, ESOL, Reading First), what SIA delivery model(s) they have been exposed to in their various classrooms, whether the lowest-performing pupils have made good progress, etc. These results also say nothing about how SIA pupils fared in comparison with their non-SIA peers (Cobb's research efforts are an exception among system practices, and GDOE does not ask for such analyses), or whether SIA's emphasis on heterogeneous grouping is also resulting in raising the scores of non-eligible pupils faster than their peers in comparable classrooms across the state where SIA services are not provided. Also, there is no longitudinal evidence to indicate what happens to SIA students beyond the program -- for example, whether learning gains are sustained in subsequent school years or whether SIA "graduates" require fewer costly services/interventions (like REP) in the future.

Compounding the lack of information available to assess pupil progress are SIA guidelines that allow school systems wide latitude in selecting which tests to use and which statistics to report. Of the performance data reviewed, the most commonly used norm-referenced

instruments were the Developing Skills Checklist for kindergarten and the ITBS for grades 1-3; gains were reported variously, as national percentiles, NCE's, grade equivalents, ITBS Continuous Achievement levels, and so on. While the original intent of the legislation was to preserve freedom of local determination as to which assessments to administer and how to publicly share results, the state-level ramifications of such flexibility make test results nearly meaningless as SIA program accountability measures.

Although A & M found the data submitted to the state annually in compliance with SIA requirements to be woefully inadequate, a different picture of local assessment practices and data analysis was heard from those SIA teachers, principals, and school system SIA coordinators who participated in the cost effectiveness study. They insisted that at the school building and classroom levels, tremendous amounts of data collection, disaggregation analyses, and pupil progress monitoring is taking place — albeit largely a paper-and-pencil effort unique to (and not readily verifiable outside of) each school (e.g., one school described how teachers maintain testing portfolios that detail each child's progress, a practice that has now become institutionalized throughout the school, even in non-SIA classrooms -- the principal routinely reviews the portfolios, and the portfolios are used for instructional planning and during staff development workshops). The assessment practices they described are consistent with best practices nationally, which conclude that continuous assessment should drive instructional improvement and help ensure that all pupils are learning and making progress towards mastery of rigorous content standards. Unfortunately, such dynamic assessment and ad hoc reporting approaches cannot readily be aggregated upwards to produce measurable, meaningful state-level accountability measures.

The high mobility of SIA pupils further calls into question assessment results — both the annual SIA required testing and the state's third grade ITBS assessments used for report card purposes — because neither a school's transiency rates nor the length of pupils' exposure to the program are taken into account in analyzing and reporting test results.

At-risk pupils are particularly prone to the regressive learning effects of the lengthy summer vacation period. For this reason, pretests and posttests need to be administered within the same continuous school year. In other words, spring 1998 test scores should not be used as pretest scores to calculate pupil gains over the 1998-99 school year because what pupils have learned by the time they take the spring 1998 test will have been lessened over the summer and must again be re-learned during the subsequent year. Of course, that means even more testing is necessary if pupil gains are to be accurately measured annually. High transiency rates magnify the pre/posttesting problem, in part because of the usual difficulties and delays in securing previous school records, the typical discontinuities of curriculum between schools, and time constraints on teachers and administrators who simply cannot spend all their time testing newcomers throughout the year.

SIA Program Goals, Guidelines, Requirements. Although the data discussed earlier in this report described a lack of clarity among the SIA program's goals, or at least among school personnel's understanding of them, A & M's study participants provided a reasonable explanation of the "fuzziness" surrounding the program's goals, mission, and expected benefits.

Even if the program were only intended to provide early intervention instructional support for developmentally delayed children to keep the gap between them and their age peers from growing larger, enlightened educators recognize that SIA provides schools an opportunity to accelerate the "catch up" for these pupils. Under SIA, schools try to accomplish much of the "catch up" by the end of grade three, and this is hopefully reflected in pupils' third grade ITBS scores. At the same time, SIA reduces the numbers of developmentally delayed pupils who might otherwise be retained in grade and attempts to reduce the number of them who would otherwise be referred to special education or REP. Along the way, SIA strives to improve instructional practices in ways that better serve the developmental needs of at-risk pupils, while also promoting improved parent involvement and family support for learning. And, without exception, A & M's study participants claimed that SIA is a critical factor on all these fronts — it provides the essential funding base that empowers teachers and schools to make the maximum effort to serve the most serious of all at-risk youngsters.

Study participants' discussion of SIA program goals also illuminated the fact that SIA has changed over the years — that the Georgia "experiment" really began before much of the current knowledge base in early intervention and the education of at-risk children was well established. They noted that the program initially brought important new ideas and instructional strategies to teachers, such as the importance of a child-centered learning environment, what constitutes developmentally appropriate practices, effective strategies for the teaching of reading, and the why's and how's of heterogeneous pupil grouping. When SIA began, these were almost radical ideas for Georgia schools, reported A & M's participants. However, this is no longer true. Now most educators have accepted these ideas and strategies, with the result that these principles and practices have become institutionalized in schools — and they are reinforced throughout the profession via national, state, and local professional development opportunities (education conferences, staff development workshops, journals, and teacher training programs).

While study participants all seemed perfectly clear about the important historical role and mission of the SIA program, they demonstrated a surprising amount of confusion about the precise regulations governing the program. The most grievous misunderstandings related to the number of SIA-eligible children for which a school could be funded.

Uncertainty about whether some SIA program features are actual requirements or merely suggested/preferred practices was also evidenced during A & M's study, especially during telephone interviews with systems that have chosen not to operate SIA programs. For example, it apparently remains unclear whether child-centered (versus teacher-centered) learning and learning centers are required; others were not certain whether some ability grouping of pupils could take place under SIA; and still others questioned whether SIA instruction had to focus exclusively on reading or might also be able to approach reading from a more subject-integrated (e.g., math, science, social studies) approach.

Nearly all study participants expressed the belief that SIA program guidelines and regulations are too prescriptive and infringe upon local schools' ability to meet the demands of growing enrollments and increasing numbers of seriously needy pupils. Indeed, several non-SIA system interviewees cited loss of local control as a major issue deterring their acceptance of SIA funding, even though they need the extra funds and would like to provide the extra instructional assistance to their lowest performing pupils. Even those hesitant to embrace the notion of a "block grant" re-make of the SIA program acknowledged that the kinds of developmentally appropriate instructional strategies SIA has brought to Georgia schools would probably continue should all program guidelines disappear, and because SIA schools have all seen positive results from class-size reduction (if only for just a portion of each school day), they thought it likely those arrangements would also continue — providing the state continues to provide the necessary funds.

One particular SIA provision that study participants pointed to as being problematic is the cutoff test score above which students are no longer eligible for program services. Several participants noted how this is a disincentive or penalty to schools struggling to make a difference in these children's learning. Examples discussed included students who barely make the cutoff in spring testing, regress over the summer, and cannot re-enter the program in fall because it is the spring scores that are used as the pretest eligibility measure. A related example pointed to the need for providing "exited" SIA students with some level of maintenance and, at a minimum, occasional intervention services for the subsequent year or two — otherwise many of these students "graduate" the program one year, meet the SIA cutoff requirement the following year, and receive services and again "graduate" the next year, etc. That SIA does not help support continuous service and monitoring of students whose progress may be considered provisional apparently makes it fiscally difficult for many schools to locally fund this higher level of effort.

SIA and Title I, ESOL, REP, Reading First, etc. If institutionalization of the important instructional concepts underlying the SIA program has largely already occurred, what is especially unique about SIA? In particular, how does SIA differ from the federal Title I program operating in most schools? This was an especially important line of inquiry, inasmuch as the relationship between poverty (as measured by the child's free or reduced-price lunch) and young children's developmental delay (and therefore SIA program eligibility) is known from the research literature to be very strong. A & M's own review of data revealed that of Georgia's 635 K-5 schools that participated in SIA during the 1998-99 school year, 72 percent received Title I funds. Nearly two-thirds of the Title I schools had sufficiently high poverty (60 percent or more of students eligible for free or reduced-price lunches) to qualify as "schoolwide programs," which enables funding to address the needs of all children in the school rather than just those with the greatest learning needs (as is the case in "targeted assistance" programs generally situated in schools having less than 60 percent poverty rates). Title I funding supports intensive instruction in reading and math, curriculum improvement/reform, state-of-the-art assessment practices, staff development, and parental involvement, all of which are required elements of any Title I program, whether it is schoolwide or targeted assistance.

From the outset of this cost effectiveness study, A & M were cognizant of the probable confounding effects of Title I — i.e., that pupil gains reported for SIA are, at least in part,

attributable to Title I efforts. On a lesser scale, they also thought the same may hold true for other learning interventions being provided to SIA-eligible pupils, such as ESOL and the state's new Reading First program. Study participants generally confirmed A & M's suspicions about program overlap, especially SIA-Title I overlap, though not every SIA school receives Title I funding, enrolls pupils who need ESOL, or participates in the Reading First program. Schools that do receive Title I funding described how they are able to seamlessly provide services under both programs (while keeping accounting matters appropriately separate), maximizing the ability to serve more needy pupils. They also portrayed SIA's professional development and parent involvement requirements as being totally consistent and seamlessly integrated with those practices required and financially supported under Title I.

It is important to note that study participants whose schools were among the 28 percent of K-5 schools across the state that do not receive any Title I funds were especially vocal about the sole, critical role SIA funding plays at their schools in supporting the needs of at-risk learners. Many of these non-Title I schools have significant poverty levels, with 11 schools falling in the 50-75 percent poverty range.

Despite the consistency between SIA and Title I program philosophies, aims, targeted populations, and accountability requirements and schools' nearly seamless integration of the two programs, it appears that there is little coordination between the two state-level offices. This seems especially puzzling in that the SIA program represents one of but a few such state-funded programs in the nation that truly meets both the spirit and letter of the federal ESEA/Title I legislation, which stipulates that states must utilize the federal monies to "supplement and not supplant" compensatory program services for low performing, impoverished (at-risk) children (states without such programs typically utilize a poverty weight in their education distribution formula).

Because GDOE's Title I office declined to provide A & M researchers with enrollment and effectiveness data, they were unable to properly explore the SIA-Title I relationship. Given the state's sizeable (and growing) Title I federal allocation and the fact that effective use of those funds in ensuring improvements in student achievement is the joint responsibility of state and local education agencies, we can only presume that at some point in the future a cost-effectiveness study of that program will also be conducted, at which opportunity the comparative impact of Title I and SIA can then be more seriously examined.

GDOE's Management of the SIA Program. Study participants reported that GDOE provides little staff support for the SIA program, relying instead on each school system's locally paid SIA coordinator to seek guidance (usually via telephone). Few opportunities are provided for the county coordinators to convene as a group, though occasional regional briefings are held. SIA teachers complained that they have little or no opportunity to get together with their peers from other SIA schools to share best practice information, discuss program implementation difficulties, or learn about new research or methods directly related to SIA program delivery.

A & M's research efforts were hampered by GDOE's lack of a computerized SIA database. Since the inception of the SIA program, all school system applications, system and school-level effectiveness data, and other such records have been stored in paper form. Insufficient GDOE staffing to work hand-in-hand with districts and schools participating in the SIA program, high staff turnover at both state and local levels, and changing program requirements and fiscal rules over the years appear to have eliminated the possibility of tapping someone's "historical memory" so that researchers might successfully locate and systematically review multiple years of program documentation.

A & M's conclusion is that, from a research perspective, little can be said about the effectiveness of the SIA program until testing improvements are made and a state-of-the-art electronic database is constructed that will allow meaningful, longitudinal tracking of individual pupils, identification of which SIA instructional models are being used in which classrooms, and a whole variety of other important variables at the pupil, classroom, school, and system levels. For these important changes to occur, the state will need to provide leadership.

Does SIA make a difference? What is the program's impact on pupil achievement? Having asserted that little could be said about the effectiveness of SIA in a definitive way, there is nevertheless strong anecdotal support, as well as some limited data, suggesting that the program makes an important difference. But the lack of solid data means that we cannot tell whether that difference is mostly in the eyes of teachers, who welcome smaller classes and the intellectual challenge of providing intensive reading instruction for at least part of the day, or, more importantly, whether those children most in need of extra assistance are actually benefitting from the program in fundamentally important and enduring ways.

Certainly A & M's study participants overwhelmingly gave the program high marks. They firmly believe in the program's effectiveness — or more precisely, they strongly believe that what they are doing under the auspices of SIA funding is accelerating the learning of developmentally delayed pupils. It is therefore only natural that they should seek to extend coverage to any and all children in need of extra instructional assistance. In a fleeting reference to the desirability of pre-school for all disadvantaged children, several practitioners noted that pupils entering school with formal pre-kindergarten experience are considerably more prepared for kindergarten and first grade, whereupon all agreed that even stronger claims of learning readiness pertain to those pupils entering first and second grade who have had kindergarten or first grade instruction under SIA.

Another telling indication of the perceived benefits of SIA is that regardless of which model study participants' schools employed, all reported that they have found creative ways of extending SIA services within their schools, over and above those services being delivered to non-SIA eligible students in SIA classrooms. Thus, it may well be that in all, or nearly all, SIA schools, many more students are being served than those reported in school system documentation and for which the state is contributing extra funding. Typically, participant schools are extending SIA services by regrouping pupils as learning needs change, adding teachers to take on extra work, and/or mentoring or coaching regular classroom teachers.

Estimating the Costs of the SIA Program

Because no data are collected by the state regarding district expenditures for SIA-related activities, it is only possible to estimate the costs districts incur in providing SIA services. In order to estimate those costs, A & M created a hypothetical example of the added personnel costs that a district would need to make in order to meet state requirements for a "reduced-class-size" SIA model or an "augmented-teacher" SIA model, which are summarized in Table 3.

A & M's hypothetical example assumes that a school district has four classrooms of pupils, either in kindergarten or in grades 1-3, which includes 108 pupils (27 pupils per classroom), of which 27 pupils, or 25 percent of all pupils, are eligible to participate in the SIA program. Under these circumstances, it would be expected that there would be four classrooms each of which would have a teacher; in addition, each kindergarten classroom is likely to have a paraprofessional and there would be a half-time paraprofessional for each classroom serving pupils in grades 1-3. These personnel ratios are based on A & M's discussions with school site personnel and with A & M's panel of experts. Based on A & M's review of public school spending in Georgia in 1997-98, it would be expected that, on average, the cost of operating the four classrooms would be $556,200 (based on a per pupil expenditure of $5,150, excluding spending for capital purposes and for transportation and food services -- with no differentiation between kindergarten and grade 1-3 classrooms since available data does not disaggregate spending by grade level). Of this total, $253,936 would be associated with the salaries and benefits of teachers and paraprofessional staff in kindergarten and $222,194 would be required for grades 1-3 -- based on an average salary of $37,314 for teachers, the assumption that paraprofessional staff are paid at a rate one-third that of teachers, and that the total cost of benefits is calculated as 27.6 percent of salary level (these figures are based on data from the Georgia Public Education Report Card).

If a district received SIA funds from the state, it would need to either add classes so that it could reduce class size or augment the number of teachers it employs and rotate through the existing classes or house augmented teachers in different classrooms and have pupils meet with them in those locations. They examined the fiscal implications of both of these options in Table 3.

In order to reduce class size in kindergarten in the hypothetical example, the district would need to add two teachers and configure classes in a specific way, in terms of the number of SIA and non-SIA pupils, so that the new classes would meet state requirements. This requires that the school that implements this approach have space available to create new classrooms. Too, the school would have to operate classes with four different ratios of SIA to non-SIA pupils: (1) one class could have three SIA pupils and 17 non-SIA pupils; (2) three classes could have four SIA pupils and 16 non-SIA pupils; (3) one class could have five SIA pupils and nine non-SIA pupils; and (4) one class could have six SIA pupils and seven non-SIA pupils. Under these circumstances, the school's class configuration would not meet state requirements, which would result in the exclusion of one SIA pupil (who, based on A & M's interviews, would be served but would not be designated as an SIA pupil, therefore not being eligible to receive state support).

A different configuration of classes could be used for grades 1-3, requiring only one extra teacher (and the associated classroom space). At these grade levels, three different kinds of classes would be necessary: (1) one class with seven SIA pupils and nine non-SIA pupils; (2) two classes with 10 SIA pupils and 11 non-SIA pupils; and (3) two classes with no SIA pupils and 25 non-SIA pupils. Under these circumstances, the hypothetical school could meet state requirements and serve all 27 SIA pupils.

The added cost of creating these classroom configurations (excluding capital costs) would include personnel and supplies/materials. The expert panel suggested that personnel costs typically represent 90 percent of all costs to implement the SIA program, with the remaining 10 percent of cost including the average start-up costs for books, supplies, and materials and the annual costs of consumable supplies. Therefore, the added cost of implementing the SIA program in the hypothetical kindergarten situation would be $105,806, of which $95,226 would be required to pay two teachers and $10,580 would be necessary for supplies/materials. In grades 1-3, the added cost would be $52,903, which would include $47,613 to cover the salary and benefits of one teacher and $5,290 for supplies/materials.

Of these added costs, the state would provide $33,660 for kindergarten (based on $1,294.61 per pupil for 26 pupils) and $30,600 for grades 1-3 (based on $1,133.34 per pupil for 27 pupils). On a per pupil basis, spreading added costs across all pupils (SIA and non-SIA) the added cost would be $980 per kindergarten pupil, or about 19 percent of the average cost of $5,150; the added cost would be $490 per pupil in grades 1-3, or about 10 percent of the average cost of $5,150. If, however, such costs were associated only with the pupils who are the primary target of the SIA program, the added cost would be $4,069, or 79 percent of the average cost, per kindergarten SIA pupil who meets state requirements in terms of service (or $3,919, or 76 percent of $5,150, per SIA pupil eligible to be served) and $1,959, or 38 percent of the average cost of $5,150, per pupil served in grades 1-3.

Consistent with the purpose of the SIA program, the state does not pay for the entire cost associated with serving SIA-eligible pupils. In fact, based on the figures used in the hypothetical example, the state pays about 32 percent of the cost of the reduced-class-size approach in kindergarten and about 58 percent of the cost of the reduced class size approach in grades 1-3. If statewide total costs were estimated, these figures suggest that the state pays $31 million of the $98 million cost associated with implementing the reduced-class-size model in kindergarten and the state pays $85 million of the $147 million cost associated with implementing the reduced-class-size model in grades 1-3. Since the sum of the state aid amounts, $116 million, exceeds how much the state actually is providing, we have either estimated costs incorrectly, fewer pupils are being served (which is likely given that very few districts offer SIA services in third grade), or districts are using a different, and perhaps less costly, model.

A & M also examined the costs associated with the augmented staff model. As shown in Table 3, the cost of the augmented staff model is somewhat lower than the reduced-class-size model in kindergarten (due to there being one less teacher required) but is exactly the same as the cost of the reduced-class-size model in grades 1-3. In fact, the cost of using the augmented

staff approach is the same whether used in kindergarten or in grades 1-3. Statewide, the use of the augmented staff model implies that the state might only pay $28 million of the $49 million cost at the kindergarten level, a savings of $3 million over the use of the reduced-class-size approach; adding this amount to the cost of grades 1-3 is $113 million, which still exceeds the actual amount of state aid being provided.

A & M's conclusion is that the cost of implementing the SIA program is significant and that while the state pays for alot of the cost, at least after the initial year of operation, there is still a large burden on districts, particularly if they choose to use the reduced-class-size approach. It appears too that there are real administrative and spacial issues associated with the reduced-class-size approach, making it much more likely that districts would pursue the augmented staff model, which gives them much more flexibility.

TABLE 3. Calculation of Cost Associated with Implementing the Reduced-Class-Size and Augmented-Teacher Model for the SIA Program for a Hypothetical Group of Kindergarten and Grade 1-3 Classes in Georgia in 1997-98

	Kindergarten	Grades 1-3
Pupils to be Served:		
SIA	27	27
Non-SIA	81	81
Total	108	108
Class Configuration, Costs, and State Aid		
Without an SIA Program		
Classes	4	4
Teachers	4	4
Paraprofessionals	4	2
Cost		
Total at $5,150/pupil	$556,200	$556,200
Teachers and Paraprofessionals*	$253,936	$222,194

* Based on an average salary of $37,314 for teachers, one-third of that amount ($12,438) for paraprofessionals, and a benefit rate of 27.6 percent of salaries.

Table 3 cont.

	Kindergarten				Grades 1-3		
Using the Reduced Class Size Approach							
Classes	1	1	1	3	1	2	2
SIA Pupils	3	5	6	4	7	0	10
Total	3	5	6	12	7	0	20
Non-SIA Pupils	17	9	7	16	9	25	11
Total	17	9	7	49**	9	50	22
Teachers			6			5	
Paraprofessionals			4			2	
Added Costs:							
Teachers			$95,226			$47,613	
Paraprofessionals			$0			$0	
Other (calculated so that Added Personnel are 90% of all Added Costs)			$10,580			$5,290	
Total			$105,806			$52,903	
State SIA Support (calculated at 1.3 times $995.85 times the number of kindergarten SIA pupils or $871.80 times the number of grade 1-3 SIA pupils served)			$33,660			$30,600	
Added Cost as a Percent of Total Cost per Pupil			19%			10%	
Added Cost as a Percent of Total Cost per SIA Pupil			79%			38%	
State SIA Aid as a Percent of Added Cost			32%			58%	

** This approach only serves 48 pupils but 49 must be served so one pupil must be added to one class in violation of SIA guidelines

TABLE 3 cont.

	Kindergarten	Grades 1-3
Using the Augmented Approach		
Added Personnel		
Teachers	5	5
Added Costs:		
Teachers	$47,613	$47,613
Paraprofessionals	$0	$0
Other (calculated so that Added Personnel are 90% of all Added Costs)	$5,290	$5,290
Total	$52,903	$52,903
State SIA Support (calculated at 1.3 times $995.85 times the number of kindergarten SIA pupils or $871.80 times the number of grade 1-3 SIA pupils served)	$30,600	$30,600
Added Cost as a Percent of Total Cost per Pupil	10%	10%
Added Cost as a Percent of Total Cost per SIA Pupil	38%	38%
State SIA Aid as a Percent of Added Cost	58%	58%

Estimating the Benefits of the SIA Program

In A & M's early examination of testing data from the state, only third grade ITBS data for SIA participants was available. This did not allow for evaluation of improvement of pupils over the time of participation in the program. Without improvement data A & M could not compare which models created the most benefit. They went to districts for testing data. This data was different for each district and even different depending on the year tested in the districts. Again, A & M did not feel comfortable comparing the progress of students in the different systems. Without this information we turned to the expert panel to identify the benefits of the SIA program. They were able to identify numerous benefits associated with the program. Like others that have tried to quantify the benefits of social programs, the expert panel had difficulty specifying the value of each benefit. Nonetheless, based on their views, A & M was able to estimate the cost implications of several, but not all, of the benefits they identified.

The expert panel suggested a series of benefits of the SIA program for pupils, for staff, for schools, and for school districts. Their list included the following:

- Reduction in the number of pupils requiring special education services in the future.
- Reduction in the rate of teacher turn-over.
- Increased pupil time-on-task.
- Increased levels of parental involvement.
- Reduction in the performance gap between developmentally delayed pupils and their peers.
- Decrease in the percent of pupils requiring remediation in the future.
- Fewer pupils retained in grade.
- Less discipline problems.
- Reduction in student absenteeism.
- Lowering of the need for language services (ESOL) in the future.
- Increase in the amount of professional development focused on developmentally delayed pupils.

A & M was able to quantify some of these benefits by making assumptions about the number of pupils that might be affected and estimating the amount of money involved, both now and in the future. In order to do this, they used a number of standards based on statewide average data for Georgia or on information from other states or the nation. For example, they assumed that, on average, school districts spend $5,150 per pupil excluding capital, transportation, and food service expenditures. They also assumed that there are about 100,000 pupils in each grade level in Georgia and that the SIA program is basically serving pupils in K-2 with about 26,500 pupils in each grade. A & M assumed that a pupil "weight" of about 15 percent reflects the added cost of serving pupils in need of remedial services and a weight of 50 percent reflects the added cost of serving low cost special education students. Estimated benefits are shown in Table 4.

Table 4. Savings from Benefits of Implementation of the SIA Program in 1997-98

BENEFIT	Number of Pupils	Savings per Pupil	Number of Years of Benefit	Total Savings*
Reduction in the Number of Referrals to Special Education	199	$2,575	7	$3,284,197
Reduction in Number of Pupils in Remediation	13,250	$772.50	8	$74,006,465
Reduction in the Number of Retentions	1,500	$5,150	1	$7,725,000

*Total savings for Special Education and Remediation are the present value of Total Savings.

The first benefit A & M looked at was the reduction in the number of pupils requiring special education services. They assume that the only pupils who might not need to be served, due to participation in SIA, would be those with relatively low level special education needs, such as those with learning disabilities or those with speech or language impairments. The expert panel suggested that participation in the SIA program could reduce the need for special education in the future by 10-20 percent based on their experience. Using the mid-point, 15 percent, and assuming: (1) about five percent of all pupils are enrolled in low-cost special education programs and (2) that the cost of serving such pupils is about 50 percent greater than

the cost of serving pupils without such needs (consistent with what we have seen in other states), then they would expect there to be a savings of $511,781 in any one given year based on the following calculation:

(26,500 pupils X .05 X .15) X (.50 X $5,150) = $511,781

They believe this benefit would extend from the third to at least the ninth grade; the student would not be in special education in any of these years. Then the savings would also exist in each of the subsequent six years. This would be an actual dollar savings, including the initial $511,781, of $3,582,467. A & M could also look at the savings in their present value. That is what the overall savings are worth in today's dollars. Ignoring the expected increase in cost over the next seven years and the use of an inflation rate of three percent a year, which will serve as the discount rate for the present value. The $3,582,467 total savings would have a present value of $3,284,197.

The second benefit A & M looked at was the reduction in the number of pupils requiring remediation. This is an area where the expert panel felt that some of the greatest benefit could be expected. They believed, from their experience, that participation in SIA could lead to a nearly 60 percent reduction in the number of students needing remediation. By picking a 50 percent decrease in students and assuming: (1) that nearly all students in SIA would require remediation and (2) the cost of serving such students is 15 percent greater than serving students without such needs (consistent with what A & M has seen in other states), then A & M would expect there to be a savings of $10,235,625 in any one given year based on the following calculation;

(26,500 pupils X .50) X (.15 X $5,150) = $10,235,625

Again, they believe these savings would extend for more than just the current year. They feel that the early intervention can reduce the need for remedial services for many years in the future. They assume that each pupil has been kept out of eight years of remediation. This leads to a total dollar savings of $81,885,000. Again, A & M looked at the present value of those dollars using a three percent inflation rate. This leads to a present value of $74,006,465.

The last benefit A & M looked at was the reduction in the number of pupils retained in grade. The expert panel felt that SIA should lead to a large reduction in the number of pupils from the program who would have to be retained. A & M used a 50 percent reduction rate and assumed: (1) that 1,000 SIA pupils in each grade, K-2, would be retained and (2) that the only added cost of these pupils is the repetition of a grade, or $5,150, then they would expect there to be a savings of $7,725,000 in any one given year based on the following calculation;

(1,000 pupils X .50 X 3) X ($5,150) = $7,725,000

The current year savings from a reduction in referrals to low cost special education programs, reduction in the number of pupils in remediation and a reduction in the number of retentions totals nearly $18,500,000. This only accounts for the impact on the number of SIA pupils being served today. It does not reflect the impact on non-SIA eligible pupils being served

in SIA classrooms. They also see that there is a long term savings generated through the benefits. This brings the total savings to over $85,000,000 in present value.

Beyond the monetary benefits, the experts felt the SIA program was beneficial to both pupils and personnel. They felt that class size in elementary schools had grown far too large often leaving the teachers feeling unable to teach effectively and, consequently, having some pupils being lost in the numbers. This, they felt, was especially true of those pupils with developmental delays. Without special attention they would be left behind. They also felt that the SIA program had a positive influence on the school as a whole. The smaller class sizes or extra teachers enabled the teachers to feel like they could meet all pupils' needs better. Teachers, the experts felt, were also less likely to move to a school with less of a developmentally delayed population if they received this extra help. Parent involvement was also more prevalent in schools with the SIA program. The experts felt the overall school atmosphere was better in SIA schools.

Comparing the Costs and Benefits of the SIA Program

Once A & M had established the expected costs and anticipated benefits, it became possible to compare benefits to costs. To do this for the SIA program they looked at the aggregate costs and aggregate fiscal benefits they had established for the program. They estimated the total cost of the program to exceed the amount paid for by the state. The present cost to the state is $104 million. A & M identified savings from the benefits of the program to have a present value of over $85 million. This leaves a cost of $19 million that is not being directly made up by the benefits of the program. That is about $235 per pupil currently in the SIA program. One might assume that this $235 is covered by those benefits A & M did not feel comfortable quantifying. What they do know is that without the current level of funding, the state can expect to see little gain for these developmentally delayed pupils.

Context and Recommendations

The cost effectiveness study was designed to examine the costs and benefits of Georgia's SIA program. Because no accounting information exists to determine the actual costs that school districts incur to deliver the program, A & M had to estimate costs based on hypothetical examples using statewide average data. While they are confident that their cost estimates are reasonable, they are not perfect. And while they also projected the value of certain benefits that might be attributable to the SIA program, they relied primarily on information gleaned from the interviews they conducted to make those projections since little usable data were available that could serve as a basis of such projections. Again, A & M is comfortable that the projections are reasonable but they are not perfect. In the end, A & M's conclusion is that the value of those benefits they could quantify justify the state's investment in the SIA program.

But the fact that the benefits of the SIA program might equal or exceed its costs does not mean that improvements should not be made in the program. In fact, a variety of changes could be made in order to increase the likelihood that districts will implement the program, that pupils will be served effectively, and that information about the program will be produced that would

allow the state to evaluate its investment. Too, the SIA program should operate in a way that is consistent with the other ways the state attempts to improve education as well as the way that the state funds its public schools.

In A & M's view, the SIA program is plagued by a variety of contradictions that impede its ability to accomplish its goals. For example, in an attempt to promote local control, the state gives school districts some flexibility in the approaches they can use to deliver SIA services. But, in reality, the implementation requirements associated with one choice, the reduced-class-size model, are so stringent that districts are left with almost no alternative but to choose the other approach, the augmented-teacher approach. And while the state gives districtswide latitude in deciding how to evaluate pupil performance, such flexibility makes it almost impossible to evaluate the efficacy of the program. Also there is little, if any, integration of the SIA program with other programs designed to serve the same population of pupils regardless of whether they are funded by the state or the federal government. The SIA program has become a bureaucratic morass that belies the spirit that created it in the first place.

Alternative Approaches for the SIA Program

A & M believes there are five alternative ways to deal with the SIA program: (1) continue to operate it as it is today; (2) distribute funds using the same procedure but improve the way data are collected so that the program can be evaluated appropriately; (3) modify the distribution procedure to focus on districts with the highest concentrations of eligible pupils and improve evaluation procedures; (4) distribute funds differently, using a pupil weight based on the actual cost of the program, while maintaining substantial state control of programmatic requirements and improving evaluation procedures; and (5) eliminate the program and fold its funding into the state aid system using an appropriate pupil weight. These options are discussed below.

First, the state could choose to continue operating the SIA program as it does today. It is apparent that the program has allowed schools to help pupils with developmental delays, while improving education for all the pupils in SIA classrooms. The program comes close to paying for itself in terms of the present value of current and future benefits, including fewer pupils in remediation, fewer pupils being referred to special education, and fewer pupils being retained. Still, by leaving the program as it is, the state maintains the problems discussed throughout the report, including a lack of comparability across districts, regulations that leave schools with low SIA populations only the choice of the augmented-teacher approach, and districts not being able to participate in the program due to a lack of seed money. A & M believes the program to be beneficial to pupils, teachers, and parents. With this in mind, they feel that minor changes need to be made in the program.

Second, the state could keep the SIA program while making some changes in the way data are collected about the program. Though A & M recognizes that the SIA program has had an effect on the ability of schools to focus attention on pupils with developmental delays, they feel that there is a need to improve the way the program is evaluated. This would start with a system that allows better comparison of test scores across districts. The state could establish a

statewide assessment for the program. This would allow for comparison of programs in different districts, allowing for comparison of the effectiveness of different models. Beyond tests scores, data on the actual benefits of the program to schools, such as reducing teacher turnover and reducing the number of pupils retained, need to be collected. These changes would increase the state's ability to evaluate its investment and provide information that could lead to programmatic improvements in the future.

A third option is similar to the second one but with the additional adjustment of focusing the distribution of funds on schools with the highest concentrations of SIA-eligible pupils. The purpose of this option is to assure that limited state funding is targeted to those schools that have both the most difficult problems and, A & M believes, the best chance of seeing a high level of benefits. A & M's feeling is that the state is likely to obtain the greatest return on its investment in schools with a large proportion of pupils who are eligible for or who are close to being eligible for the SIA program; too, the schools that may need the most help are those with a high proportion of low performing pupils that do not qualify for federal funds.

The fourth option is to distribute funding based on a pupil weight designed to reflect the actual costs of the SIA program. Programmatic requirements could be kept the same, while an improved evaluation process could be put into place. The weight could either reflect the full cost of serving an SIA pupil, a weight of about 0.80 for kindergarten pupils and a weight of about 0.40 for first, second, and third graders, or it could reflect the amount the state pays now, a weight of about 0.25 for kindergarten pupils and a weight of about 0.22 for first, second, and third graders (where the weight indicates the proportion of a base figure, in this case $5,150 per pupil -- which exceeds the figure the state actually uses in the state aid formula). The most obvious effect of this change would be to provide funds to districts with schools that are creating new programs or expanding existing programs, which could be costly to the state unless either the weight were reduced to a level that assured that the total cost were "neutral" or local funding was required to be provided.

The last option would be to roll the funding into the state aid formula using a pupil weight. The weight could be based on pupil population numbers, such as pupils in ESOL or the number of pupils eligible for free and/or reduced price lunch. The state could identify a mix of factors that work as a proxy for the percent of pupils with developmental delays within a district. This would eliminate the state requirement of frequent testing for placement in the SIA program. It would allow districts to decide how they wanted to identify SIA pupils. The state would want to create an accountability system around SIA funds but could eliminate the specific requirements of implementation, which would allow districts to develop approaches that reflect both the specific needs of their pupils and their circumstances in terms of space and personnel. The use of a pupil weight would also create a wealth-equalized distribution of funds, which would be consistent with the way the vast majority of state aid is distributed.

Part VI: Major Findings

The purpose of this report was to answer the four questions that guided the evaluation of the SIA program. The questions were:

1. How is the SIA program currently being implemented in Georgia?
2. Is the academic performance of SIA students on par with the academic performance of non-SIA students?
3. What is the relative effectiveness of each delivery model?
4. Is the SIA program cost effective?

Overall, each source of information that was collected (surveys, observations, focus groups, cost effectiveness) provided, for the most part, mutually supportive information. This section of the report discusses the major findings, as they relate to each of the evaluation questions. Part VII provides some recommendations for decision making regarding program improvement. The data from all of the components of the evaluation indicate that SIA is widely seen as a positive force in Georgia's schools, and as an opportunity to address students' needs before they result in serious academic deficiencies.

There is no evidence to show that the overall achievement gap between SIA and non-SIA students has been reduced by participation in the SIA program. SIA students as a whole continue to score lower on both the reading and math portions of the ITBS than their non-SIA peers. In addition, the achievement data also showed that SIA students are more likely than non-SIA students to be enrolled at some point in other compensatory education programs, specifically Title I and the REP. Moreover, students enrolled in SIA and one or more compensatory programs scored lowest on the reading and math ITBS sub-tests.

There is, however, some evidence that the SIA program is effective in improving the achievement of the lowest performing students (i.e., those enrolled in the SIA program for two or three years). The number of students scoring at or below the 30th percentile on both the reading and math portions of the ITBS decreases as the length of program participation increases up to three years. In other words, the proportion of SIA students scoring at or below the 30th percentile is smaller for students that participate for at least two years, and even smaller for students that participate for three years. The data show that offering the program for three years, in grades K-2, produces the largest decrease.

The data suggests that there is a need to examine the assessments used to determine SIA eligibility. SIA schools have always had the autonomy to select their own instruments for identifying eligible students and for assessing student progress in each grade level served. Therefore, the only consistent test data available across all SIA schools is the third grade ITBS. These scores only allow for examination of SIA students' achievement after their participation in the program, and therefore, limit the potential for examining academic growth at each SIA grade level.

Given the above, when third grade ITBS scores were examined relative to program length, the data suggest that there may also be a need to re-think the length of time the SIA program is available to students. First, there is little difference in ITBS test scores between students in the program during grades K-2 and those in for three years (K-3). This suggests that the gains in terms of academic achievement from the program level out after second grade. It is likely that at grade three, the need for a preventative program like SIA decreases and the need for remediation becomes more necessary. The REP also becomes an available resource to students at this point. The possibility of dropping SIA from third grade classrooms and linking SIA with the REP to provide continuity of services for those who need remediation after grade two should be fully examined.

Additionally, when examining the impact of each model relative to academic achievement, the results suggests that while model type does not appear to affect reading achievement, math achievement is significantly better in classrooms operating an augmented model. While having an additional certified teacher in the classroom is certainly more expensive, the cost effectiveness study data show that the long term benefits of this model type certainly justify the costs. It may be that providing an additional teacher to serve at least for math instruction may decrease the number of students needing remediation in math at grade three and above.

In terms of implementation, the data show that SIA staff and administrators articulate a goal for the SIA program that is more stringent than the goal set forth in the program guidelines. Teachers and school administrators alike view the program as an opportunity to close the gap between students in need of extra academic assistance and those who are not. The stated goal of the SIA program, however, implies preventing the gap from becoming larger. However, the extent to which the stated purpose and goals are truly aligned with instructional practices is unclear and should be examined.

It also appears that the primary benefit derived from the SIA program is not necessarily the use of innovative or different instructional practices (although instructional practices specific to the program are evident), but, SIA funds appear to predominantly serve as a vehicle for reducing class size, especially during language arts and math instruction. The data show that, on average, the SIA program, especially the Reduced Class Size model, does provide for smaller class sizes compared to non-SIA classes in the schools that were included in this study. The observation and focus group data also suggest that, by and large, school administrators and teachers prefer the option of reducing class size. The primary reason for the preference seems to be the ability to reduce class size and thereby, provide more individual instruction to students.

Although parental involvement is a required component of the SIA program, data from the observations and focus groups suggest that at some schools, it has not been implemented to the expected level. Parents are informed via written communication about their child's progress and are invited to attend parent-teacher conferences and other special events. Some schools also offer opportunities for more direct involvement in the classroom. However, like other educational programs, it is difficult to get parents fully involved. The value of parental

involvement in reinforcing the academic instruction in the classroom can not be underestimated. Not only does it afford parents an opportunity to help address areas of difficulty for their children, it also provides continuity between classroom instruction and what students focus on academically when they are home. One possible recommendation may be to change the guidelines for the parental involvement component. It may be necessary to require schools to offer a certain number of opportunities for involvement and require a certain number of written and face-to-face contacts with parents in order for this component to be fully implemented.

In terms of the program's cost effectiveness, two findings are particularly important. First, the cost effectiveness data suggest that the state's investment in the SIA program is producing benefits that justify the cost. Second, as mentioned briefly above, the choice of which SIA model is to be used in the classrooms seems to be largely based on budgetary constraints rather than teacher preference or program efficacy. The cost effectiveness data show that many schools that would prefer to offer the reduced class size model, must implement the augmented model in order to serve the most students. One of the benefits outlined in the cost effectiveness study is reducing the number of students in need of remediation. This benefit, along with others discussed in Part V of this report has implications for cost savings for the state.

Part VII: Recommendations

The data from the SIA evaluation provide the rationale for making some recommendations for substantive changes in the program, as recommended below. Specifically, the following four recommendations would enhance the program's ability to provide services to more students, provide more individualized instruction and achieve benefits that will provide long term savings, in terms of student's requiring more special services, to the state.

Identify a standard instrument to assess the eligibility and progress of SIA students. Given the variation in the instruments used to determine SIA eligibility and students' academic progress during their enrollment in the program, it is difficult to assess achievement over time, or make comparisons across school and SIA programs. Implementing a standard tool to assess students would provide useful, long-term information on program efficacy and student academic achievement, and should be considered.

Use SIA funds to reduce class size in the elementary grades. The data provided in this report suggest that, across the board, stakeholders feel the reduced class model is most beneficial, particularly in the earliest grades, and because of the opportunity to provide more budgetary consideration. In order to allow SIA schools to implement the model they feel will best meet their students' needs, the possibility of providing sufficient funds to support this approach should be taken into consideration.

Implement the SIA program in grades K-2. The achievement data presented in this evaluation show that students who are enrolled in the SIA program for three years (K-2) as compared to four years (K-3) perform better on the ITBS. It is possible that at grade three, students are more in need of remediation than the curriculum used in SIA instruction. The feasibility of reallocating SIA funds so that students in grades K-2 can be served should be explored to ensure that students receive benefits from the program.

At grade three, combine the SIA program with REP to change the focus to remediation and provide continuity of services. It is possible that at grade three, SIA students need to shift from SIA to REP. The recommendation for combining SIA and REP at this grade level should be explored.

Reallocate SIA funds to provide the greatest benefits as well as cost savings to the state. The cost effectiveness data provided the basis for reconsidering the SIA funding formula. Reallocation funds by one of the options suggested in Part V of this report may produce the greatest benefits for the program in addition to a cost saving for the state.

Appendix A: Methodology

Surveys

The survey portion of this study was conducted by Applied Research Services, Inc. of Atlanta, Georgia, working under contract to the Georgia Department of Education (GDOE). This contract was awarded through a competitive bidding process jointly administered by the Departments of Education and Administrative Services.

Surveys were sent to all SIA teachers at a geographically stratified random sample of 184 schools participating in the SIA program. This produced a pool of approximately 1,000 survey recipients.

A comparison group of about 3,000 randomly selected non-SIA teachers and paraprofessionals was also surveyed. This number represented just under half of the approximately 6,600 non-SIA teachers and paraprofessionals at the 184 target schools.

In all, about 4,000 surveys were mailed out in spring 1998. Of the 184 schools, 161 (87.5 percent) responded to the surveys. Individual surveys were received from 832 SIA teachers, 196 SIA paraprofessionals, 554 non-SIA teachers, and 40 non-SIA paraprofessionals. Principals at 146 of the targeted schools also returned completed surveys.

Because the SIA teachers were over-represented in the sample, responses were weighted to eliminate any sampling bias that may have resulted.

Focus Groups

The focus groups that were a part of this study were conducted by the Denver, Colorado office of RMC Research Corporation, Inc., working under contract to the GDOE. This contract was awarded through a competitive bidding process jointly administered by the Departments of Education and Administrative Services.

The focus groups were conducted in spring 1998. Three focus groups were held in each of the state's 11 federal congressional districts. In total, 175 teachers and administrators participated in the focus groups. Data from the groups were synthesized by RMC staff and reported to the GDOE.

Observations

The observations that were done as a part of this study were conducted by The University of Georgia (UGA), working under contract to the GDOE. This contract was awarded through a competitive bidding process jointly administered by the Departments of Education and Administrative Services.

Observations were conducted at a geographically stratified sample of 30 randomly selected schools, with two observers visiting each school for two days. The observers were faculty from 12 of Georgia's state universities. Prior to conducting the site visits, the observers were trained in the use of various protocols and instruments that had been developed by UGA project staff. The data collected by the field observers were synthesized into school reports by the team leaders and sent to UGA. UGA staff then reviewed the school level reports for accuracy and completeness, and developed the final observation report.

Cost Effectiveness

A & M used multiple sources of data and a variety of analytic approaches in conducting the cost effectiveness study. They reviewed reports from GDOE contractors engaged in earlier phases of the SIA program evaluation and reviewed the SIA evaluation summary prepared by GDOE. They collected systemwide fiscal data for SIA from GDOE's Budget/Accounting Services staff for FY 99 and FY 00, which showed full-time-equivalent (FTE) pupil counts of children being served under SIA, together with salary and operation costs, by grade level, for each of the state's 194 school districts/systems. A & M also reviewed copies of system and school-level SIA budgets for counties that sent participants to our interviews. A & M also analyzed state level fiscal data about spending, pupils, teachers, and salaries in order to develop statewide averages for use in our cost estimates. GDOE's Accountability staff provided an Excel file of requested 1998-99 K-5 school and system data (enrollment figures, pupil demographics, percentage of pupils receiving the services of SIA and other special programs, and spring 1999 third grade ITBS composite scores) not yet available at the department's website pop-up report card menu. The SIA county coordinators who directly participated in this study provided copies of their FY 99 and FY 00 system applications, together with the grade-level effectiveness data that is reported annually to GDOE for each of their schools.

A & M conducted targeted-purpose practitioner interviews. Over a two-day period in early December 1999, A & M conducted all-day interviews with a total of 27 practitioners from 13 Metro Atlanta schools that receive SIA funds. The schools represented a convenience sample, selected by A & M from a list of Atlanta City, Cobb, DeKalb, and Fulton County schools nominated by GDOE staff and SIA county coordinators as having well-implemented SIA programs in operation. From the larger list, they purposively chose schools based on SIA program model, pupil demographics (especially the percentage of disadvantaged pupils, as determined by those receiving free or reduced-price lunches and ESOL services), percentage of pupils receiving SIA services, and third grade ITBS scores. In this manner, 8 of the 13 schools may be characterized as high-poverty schools (between 70 and 100 percent of their pupils receive free or reduced-price lunches), and the other 5 schools have poverty rates below or approximately equal to the state's average, in the 15 to 45 percent range. In addition, school size ranged from an enrollment of 385 to 1,057 pupils, and the average 1998 third grade ITBS composite score for seven of the schools exceeded the statewide average. Of the 29 schools invited to participate, only two declined, both due to scheduling difficulties.

These interviews provided A & M with an opportunity for in-depth probing of program practices, including curriculum and instruction, materials and technology usage, space/facility requirements, teacher training/professional development, methods by which pupil needs are identified and progress is assessed, parent involvement, and how the SIA program fits alongside Title I, Reading First, ESOL, REP, and other such programs that provide special assistance to struggling young learners. Next, they convened an expert panel. Follow-up telephone interviews were conducted with two additional SIA county coordinators who were unavailable for the Atlanta panel meeting. Panel members were identified by A & M researchers during telephone data-gathering processes and via nominations by GDOE staff and executive directors of the professional associations represented

Using what had been learned about the SIA program from the practitioner interviews and the other data sources listed above, they used the expert panel forum to test assumptions and preliminary findings, probe for further information, and lead panel members through a detailed dialogue aimed at clarifying and quantifying both the benefits and the costs associated with the SIA program and the extent to which those benefits and costs vary, given differing school contexts, implementation models, and everyday realities. Subsequent to the practitioner interviews and expert panel meeting, A & M staff conducted telephone interviews with 13 additional county school systems. Seven are among the nine Georgia school systems (constituting 5 percent of all districts) that do not receive any SIA funds. Six systems are among the 14 that currently operate an SIA program only at the kindergarten level. All 13 school systems contacted are small town/rural, with PK-5 enrollments between 211 and 1,208 pupils. The purpose of phoning the 13 superintendents, assistant superintendents, or directors for curriculum and instruction was to ascertain why some counties elect not to participate in the SIA program or to limit their participation to the kindergarten level.

It should be noted that the practitioner interviews and expert panel meeting resulted in the direct involvement of SIA classroom teachers, school principals, and county/system administrators representing some 159,000 PK-5 pupils, of whom more than 30,800 are being served by SIA. Adding the telephone input of senior administrators from counties not providing SIA or only providing services at the kindergarten level, more than one-third (170,860, or 36.7 percent) of the state's current estimated total PK-5 public school enrollment and about 40 percent of all SIA pupils were represented in the cost-effectiveness data collection efforts. (Nevertheless, it must be kept in mind that, owing to the constraints of time, cost, and logistics, their research design sought only a convenience sample of school systems, undoubtedly resulting in the over-representation of large urban/suburban counties.)

A & M also conducted a review of relevant literature. From the outset of this study, they recognized that there was a large research base related to the SIA program. They also realized that this small cost-effectiveness study is necessarily an expeditious attempt to use readily available data to tackle some very large, politically charged issues that even the nation's foremost education reformers cannot agree upon — e.g., the efficacy of class size reduction, appropriate practices in early childhood education, effective reading strategies/programs, reliable assessment of learning in the primary grades, and how to narrow the achievement gap for at-risk

pupils. Their findings and recommendations reflect their best efforts to ground what they found in Georgia in the strongest recently published research and in current thinking in school finance reform nationally.

Student Achievement Data

The achievement data used in this evaluation came from two sources: 1) the State of Georgia's Student Information System which contains individual level demographic and achievement-related information for all students enrolled in Georgia's public schools, and 2) ITBS data from Riverside Publishing Company, the test developers. These two data sources were then paired to create a comprehensive database containing demographic, achievement and data on other indicators related to student's academic success.

Descriptive statistics were conducted in the sample to ascertain the percentage of students that were: 1) enrolled in the SIA program, 2) enrolled in the SIA program for multiple years, 3) enrolled in other education initiatives, and 4) not enrolled in SIA or other early childhood interventions. Achievement data on these groups were then analyzed using frequencies, correlations, analysis of variance and other analytic techniques. These results are presented throughout the report.

Appendix B: Program Guidelines

Special Instructional Assistance (SIA) Program Guidelines and Implementation Suggestions

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PURPOSE

Children start school at a designated chronological age, but differ greatly in their individual development and experience base. The Special Instructional Assistance (SIA) Program, is designed to serve students with identified developmental delays that may prevent them from maintaining a level of performance consistent with normal expectations for their respective ages. While the focus of SIA is on early intervention and prevention for an identified population of children, the program structure allows for an emphasis on improved instruction and increased academic achievement for all students

I. Program Structure

The program design is selected or developed locally in coordination with regular instruction and other educational programs Development and evaluation of the program shall involve teachers, administrators, and parents at the school level. Program coordination at the system level may vary according to the size, needs, and policies of the local system. The SIA program shall include four components:

(1) Instruction
(2) Parental Involvement
(3) Staff Development
(4) Evaluation

1. Instructional

STAFF: SIA ~~should~~ *must* be staffed by certified teachers and paraprofessionals with experience and expertise in teaching students with diverse needs and abilities. Ability to work well with other teachers is essential in collaborative teaching models.

TEACHING STRATEGIES: A variety of instructional strategies and materials shall be selected by the school staff based on knowledge of how children learn and documented best/effective practices. Strategies shall promote further development of children's language, cognitive, social and motor skills. Learning centers are not required.

STUDENT ASSESSMENT: Student assessment ~~should~~ *will* reflect the students' academic progress and *shall* be used for instructional planning for academic achievement. Evaluation instruments that provide the basis for establishing and assessing achievement objectives and yield a measure of student gains ~~should~~ *shall* be used. Any assessment policies or procedures developed, or required, in the future by the State Board of Education will apply to SIA classes. Local systems will be notified, if and when, such requirements are initiated.

DELIVERY MODELS: Each participating school selects the delivery model(s) to be used. Any combination of models may be used within a system or school depending on the unique needs and characteristics of the students and school. The State Rule 160-4-2-.17 requires participating schools to use heterogeneous grouping for SIA classes, or provide an explanation in the program application if characteristics of the student population make this grouping impossible. Heterogeneous grouping is defined as "SIA eligible students in classes with a majority of non-SIA eligible students". There are three models from which the participating school may select:

(1) *Reduced Class Size- This model is used to reduce the class size in order to provide more emphasis on instruction and increased academic achievement. Additional certified teacher(s) may be hired to reduce the class size. SIA funds shall provide additional staff beyond that provided through regular per pupil FTE funds. An explanation of how the classes will be reduced shall be provided in the grant application.

(2) *Augmented Teaching- An additional certified teacher, referred to as an augmented teacher, ~~may~~ *will* work with the regular teacher in the classroom for a segment (50-60 minutes) of the day. Together, teachers plan and develop appropriate strategies for meeting students' needs. Either teacher ~~may~~ *will* work with targeted students or any other student. The schedule and role of the augmented teacher is established at each school. Two teachers may work together and share one classroom if space and class sizes are conducive to this arrangement.

(3) *Other School Designs- Schools/systems may design other instructionally sound models that incorporate innovations or special initiatives. This includes: parallel block scheduling with flexible grouping, continuous progress and multi-age class grouping, or inverted heterogeneity classes.

*See Enclosure One for the maximum class size for these models.

2. Parent Involvement

Parental involvement in the child's education is vital to success. The parent component of the SIA program ~~should~~ *may* be coordinated with other programs as a part of the school's overall plan for involving parents. Parents shall be informed of the child's progress. The local plan for involving parents/guardians ~~should~~ *will* be designed to meet the needs and characteristics of the families and community. Examples of activities that may be included are:

- parent conferences
- home visits
- parent workshops, training/ instructional opportunities
- parent/guardian volunteer or mentoring programs
- resource centers at the school
- encouraging/inviting participation on advisory panels and school improvement committees
- skills checklists

3. Staff Development

Staff development ~~should~~ *shall* be provided for all staff to adequately prepare teachers. paraprofessionals and administrators for working with diverse learners. Funds may be used to support training activities, materials and media in accordance with state purchasing and accounting procedures.

4. Program Evaluation/ Accountability

Local schools shall set goals and develop a plan for evaluating the effectiveness of the SIA program at the school level. Local schools shall maintain individual student assessment data and program evaluation information. State law (20-2-153) requires the reporting of average achievement of the students served. This documentation shall be provided, as requested by the State Department of Education, to measure student achievement and program success. Schools receiving funds are expected to document results. A student achievement record form will be mailed to you by February 1998. The Division of Research, Evaluation, and Testing will develop procedures for continuous evaluation of various aspects of the SIA program. Information will be obtained through the state's Student Information System, when possible, to eliminate reports/paperwork at the school level. The DOE will conduct on-site visits on a limited bases to monitor the SIA program during the 1997-98 school year.

II. APPLICATION AND REPORTING PROCEDURES

Each school requests participation through the application provided by the State Department of Education that is provided to each system in the spring. The application will be distributed to individual schools that choose to participate. A signature by the local system Superintendent and the date of local board approval is required on the system cover page.

A one page budget and expenditure report form for each school and each system is provided by the Department of Education for planning and reporting expenditures for fiscal year. It is recommended that budgets be developed at the school level with administrative and teacher input. Funds may be used to support any of the program components. SIA funds ~~should~~ *must* provide additional resources beyond that provided through regular per pupil FTE funds.

The number of students served (documented as eligible by the screening process) shall be reported annually on the system's FTE count. The Student Information System (SIS) will be used for funding and accountability reporting. If more than thirty percent of the students at a grade level are eligible for SIA, additional information will be required on the school's application.

<u>See Enclosure Two for additional information about the proposed class sizes and maximum FTE count.</u>. Questions concerning allotments, use of funds, or reporting expenditures should be addressed to the budget office of the State Department of Education. The number is 404-656-2492.

III. ELIGIBILITY

The purpose of the SIA program is to provide support for students scoring on or below the 35th percentile at the kindergarten level and on or below the 30th percentile at grade levels first through third meet or exceed grade level expectations. Students ~~should~~ *shall* be evaluated each year and ~~should~~ exit the program when they reach grade level proficiency or upon referral for other services such as Special Education. Student served by Special Education (unless special education services consist solely of physical disabilities) or Remedial Education funded programs are not eligible for SIA services.

Eligibility Criteria:

- Criteria for eligibility ~~needs to~~ *should* be consistent throughout the system.
- Eligibility determination is made at the school level by identifying the number of students functioning below the normal expectation for the respective grade level.
- In order to identify those children functioning on or below the 35th percentile for kindergarten and 30th percentile for first through third grade, one form of assessment must be a norm-referenced instrument. This assessment may be administered at the eligibility level or at the placement level.
- Initial eligibility is established by using two screening methods.
- Screening methods selected or designed ~~should~~ *shall* be administered consistently to all students across a grade level.
- After identifying a pool of students eligible for SIA, placement ~~should~~ *shall* reflect those students functioning below grade level expectations. The norm-referenced assessment instrument administered to kindergarten students ~~should~~ *must* reflect scores on or below the 35th percentile. Scores for students in first through third grade ~~should~~ *must* be on or below the 30th percentile.
- Students placed in the SIA program must be administered an assessment that will reflect achievement gains for the academic year. A reporting form will be sent to you at a later date for the recording of pre- and post-test scores. You may choose to use a system designed reporting form. These scores may be Fall to Spring or Spring to Spring.

Appendix E

A. Reduced Class Size

Grade Level: Kindergarten Base class size 22 with paraprofessional

SIA students	Non-SIA students	Maximum total in SIA class
1	20	21
2	19	21
3	17	20
4	16	20
5	14	19
6	13	19
7	11	18
8	10	18

Base class size 17 without paraprofessional

SIA students	Non-SIA students	Maximum total in class
1	15	16
2	13	15
3	12	15
4	10	14
5	9	14
6	7	13

SIA Kindergarten classes may not exceed the maximum size of 21 with a teacher and paraprofessional or 16 with a teacher only.

Grade Level: 1st-3rd Base class size 26 paraprofessional

SIA students	Non-SIA students	Maximum total in class
1	24	25
2	23	25
3	21	24
4	20	24
5	18	23
6	17	23
7	15	22
8	14	22
9	12	21
10	11	21

Base class size 20 without paraprofessional

SIA students	Non-SIA students	Maximum total in class
1	18	19
2	16	18
3	15	18
4	13	17
5	12	17
6	10	16
7	9	16

Grades 1-3 may not exceed 25 with a teacher and paraprofessional or 19 with a teacher only.

Maximum Class Size

B. Augmented Class Model

A state certified early childhood teacher will work for 50-60 minutes with no more than ten SIA students.

C. School/ System Designed Model
Reduced Class - Inverted Heterogeneity

Grade Level: Kindergarten with paraprofessional

SIA Students	Non-SIA Students	Maximum Total in SIA Class
9	8	17
10	6	16
11	4	15
12	2	14
13	0	13

Kindergarten without paraprofessional

7	6	13
8	4	12
9	2	11
10	0	10

Kindergarten SIA inverted heterogeneity classes may not exceed a maximum of 17 students with a teacher and paraprofessional or 13 with a teacher only.

Grade Level: 1st-3rd with paraprofessional

SIA Students	Non-SIA Students	Maximum Total Class Size
11	9	20
12	7	19
13	5	18
14	3	17
15	1	16
16	0	16

Grade Level: 1st-3rd without paraprofessional

8	7	15
9	5	14
10	3	13
11	1	12
12	0	12

Grades 1-3 SIA inverted heterogeneity classes may not exceed a maximum size of 20 students with a teacher and paraprofessional or 15 with a teacher only.

Maximum Class Size

D. School/System Designed Model

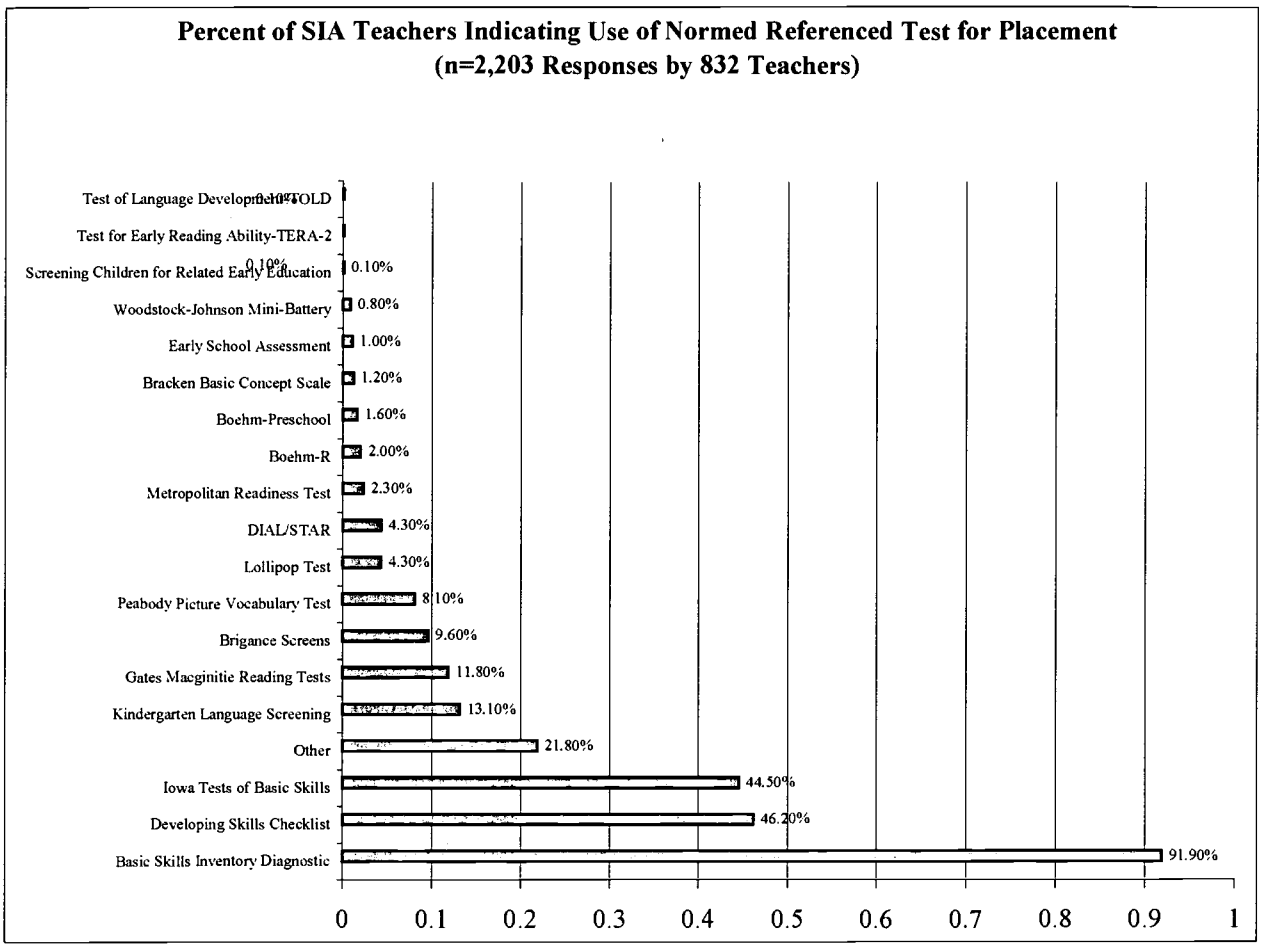
Augmented Model- Inverted Heterogeneity

A state certified early childhood teacher provides service to ten SIA students for 50-60 minutes. If there are more than ten SIA students in the class, the augmented teacher will increase the amount of time spent working with children by 30 minutes for every five additional children. (Example: If there are 15 SIA children in the class, ninety minutes of augmented service should be provided.)

Appendix C: SIA Program Designs Implemented and Grade Levels Served at Observation Sites

School	SIA Program Design	K	1	2	3
1	Augmented in-class	X	X	X	
2	Augmented in-class	X	X		
3	Augmented in-class	X	X	X	X
4	Augmented in-class	X	X		
5	Augmented in-class	X	X	X	
6	Augmented in-class	X			
7	Augmented in-class	X	X	X	
8	Augmented in-class	X	X		
9	Augmented in-class	X			
10	Augmented in-class	X	X	X	
11	Augmented in-class	X	X		
12	Augmented in-class	X	X		
13	Augmented in-class	X	X		
14	Augmented in-class	X			
15	Reduced class size	X	X	X	
16	Reduced class size	X	X	X	X
17	Reduced class size	X	X	X	
18	Reduced class size	X	X	X	
19	Reduced class size	X	X	X	X
20	Reduced class size	X	X	X	X
21	Reduced class size	X	X	X	
22	Augmented pullout	X	X		
23	Augmented pullout	X	X		
24	Augmented pullout	X	X	X	
25	Augmented pullout	X	X	X	
26	Reduced class size and augmented in-class combined	X	X	X	X
27	Reduced class size Augmented pullout	X	X	X	 X
28	Augmented in-class Augmented pullout	X	 X		
29	Augmented in-class Augmented pullout	X	 X	 X	
30	Augmented variation	X	X	X	

Appendix D: Eligibility Tests Used at Survey Sites



- 91.9% of teachers endorse a Basic School Skills Inventory Diagnostic test be used for placement in the SIA program.
- Skills checklists (46.2%) and the Iowa Tests of Basic Skills (44.5%) were also endorsed.

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Appendix E: Legislative/Regulatory Compliance Issues

Georgia Department of Education (GDOE) program evaluations are primarily designed to fully investigate the main and side effects, including instructional and cost effectiveness, of the program being evaluated. These evaluations do not "audit" the extent to which schools, school districts, or the state are or are not operating programs in compliance with federal or state law, or board regulations. Rather, they establish the merit, worth, and significance of the program at the state level. However, in the course of conducting a comprehensive evaluation, some valid and reliable "audit" data are inevitably produced. This section of the report summarizes those data.

From O.C.G.A. §20-2-153:

"The State Board of Education shall create a special instructional assistance program to assist students with identified developmental deficiencies which are likely to result in problems in maintaining a level of performance consistent with expectations for their respective ages."

The SIA program and its supporting regulatory structure exist to fulfill this mandate.

"Only students enrolled in grades kindergarten through five with documented developmental levels below expectations for their respective ages that are not attributable to an identified disabling condition and who are not enrolled in either the remedial education program or any of the special education programs shall be eligible for the special instructional assistance program; provided, however, that students with physical disabilities whose special education services consist solely of therapy related to the physical disability shall be eligible for the special instructional assistance program if they meet all other criteria of this Code section."

To the extent that no child at or above grade six is being served by the SIA program, this requirement is being met. However, lack of funding prohibits offering the program in grades four and five. The evaluation did not produce any data suggesting that children who do not meet the eligibility criteria established by §20-2-153 are being served by the program.

"The state board shall specify the instruments and process used to determine student eligibility for this program, including specification of the student eligibility criteria to be applied, the allowable educational services to be provided under this Code section, and the funding guidelines to be used in distributing state funds to participating local school systems."

The SIA guidelines, produced and regulated by the Curriculum and Reading Division, specify how student eligibility will be determined, which services are to be provided, and a formula for funding.

"Such policies and guidelines shall be submitted to the General Assembly for review and comment prior to the request for funding by the state board."

The means by which the GDOE communicates with the General Assembly does not fall within the scope of this evaluation.

"Each local school system shall annually report by grade level the number of eligible students, the number of students served, the types of services provided, and the average achievement of the students served."

Communication between the GDOE and local school systems is not a part of this evaluation.

"In the event that insufficient funds are appropriated by the General Assembly to serve all eligible students in this program, any funds which are appropriated shall be directed toward addressing the needs of the youngest eligible students in each local school system."

The relatively large numbers of students participating in SIA in the schools involved in this evaluation, and the decreasing opportunity for students to participate in SIA as they advance through the primary school years, suggest that the state is in full compliance with this part of the Code.

From Georgia State Board of Education Rule 160-4-2-.17:

"Local units of administration shall submit to the department for approval an application to implement the SIA Program by the deadline specified annually by the department."

Communication between the GDOE and local school systems is not a part of this evaluation.

"Schools participating in the SIA Program shall provide a developmentally appropriate instructional program, parental involvement opportunities and staff development activities in accordance with Georgia Department of Education, Special Instructional Assistance Guidelines."

The data collected indicate that this part of the rule is being met. Inevitably, though, the quality of the instructional program and the parent involvement and staff development components seems to vary greatly across the sites.

"Participating schools shall use heterogeneous grouping for SIA classes or provide an explanation in the program application if characteristics of the student population make heterogeneous grouping impossible."

The data collected indicate that this rule is being met.

"Each school shall annually report to the department the number of eligible students, the number of students served, the types of services provided, and the average achievement of those served, as identified by pre- and post-tests."

Communication between the GDOE and local schools is not a part of this evaluation.

Appendix F: Cost Effectiveness Literature Review

The Costs and Benefits of Early Instructional Interventions: What the Research Literature Tells Us

As previously described, the research approach utilized by A&M in this study was grounded in data collected earlier by the GDOE in connection with its comprehensive evaluation of the Special Instructional Assistance program and other statewide data (primarily fiscal and demographic) obtained from the department. We especially relied on information obtained from A&M targeted interviews with SIA school practitioners, an expert panel review process that tapped the knowledge and experience of county SIA coordinators and representatives of prominent professional associations in the state and telephone interviews to senior administrators in school systems not participating in SIA or only providing SIA services to kindergartners. Contributing also to this "triangulation" of information was a review of the literature related to (a) cost-effectiveness research methodology; (b) effective early instructional interventions for low-achieving, developmentally delayed, and/or at-risk children; and (c) the use of class size reduction as a cost-effective policy option for improving pupil achievement. This section outlines what we learned from that literature review.

Measuring Cost Effectiveness

Cost-benefit analysis is often defined as a measurement technique in which the total costs of a specified project or program are compared with its probable total benefits, an approach that relies heavily on quantifiable, tangible elements. Cost-effectiveness research, a late 1960s variation of the cost-benefit approach, typically places less emphasis on estimating returns from investments and more on ascertaining alternative fiscal allocations that will achieve desired goals, usually in a less costly or otherwise more beneficial way. Unlike cost-benefit analysis, cost-effectiveness analysis can retain "raw forms" of outputs without converting them to dollar values (for example, the input side of the cost-effectiveness calculation will be in dollars, but what those dollars produce may take the form of a percentage of middle grade pupils successfully completing two years of advanced mathematics during their high school years, as opposed to the calculated economic value of such advanced study).[11] Given this latitude to examine educational outcomes in units readily meaningful to policy makers and practitioners, cost-effectiveness studies have become the preferred methodological approach to establishing relationships between costs and benefits in the educational domain.

Yet cost-effectiveness studies in education are few — and good models that employ sound methods are even fewer. It is even argued by some research experts that the vast majority of all such current studies consist primarily of unsupported rhetorical claims and exhibit weak or flawed methodologies, suggestive of a high incidence of invalid conclusions and misleading

[11] This definition is taken from Melvin R. Levin and Alan Shank, eds., *Educational Investment in an Urban Society: Costs, Benefits, and Public Policy* (New York: Teachers College Press, 1970), pp. 1-2.

recommendations for educational policy.[12] Even cost-effectiveness studies that adhere to rigorous methodological standards typically fall short in terms of usefulness to policy makers in that, in an effort to maximize reliability, the research parameters and resulting findings are too narrowly restricted, outcomes (benefits) are mostly defined as test scores, costs are solely budget-based, and practitioner judgments are usually excluded. While this kind of research precision increases the reliability of findings, such studies fail to pass muster in the more important arena of validity — i.e., they are largely inapplicable to the messy world of everyday life in classrooms, ordinary multi-tiered school operations and governance, and fiscal decision-making processes that often are more reflective of local political realities than best educational practices.

It must be noted that cost-effectiveness measurement (as well as cost-benefit analysis) rests heavily on professional judgment.[13] Therefore, it is essential for the researcher to guard against systematic bias or external manipulation of factors being studied. Such vulnerability is usually addressed through the purposeful inclusion of broad-based practitioner and expert professional opinion that is also tempered by or filtered through the content expertise of the researcher. This cost-effectiveness study of Georgia's SIA program represents just such a professional judgment model.

Cost Effectiveness and Early Interventions

Among the benefits of early intervention for educationally disadvantaged children that have been identified by economists and education policy researchers as particularly salient in the primary grades are those benefits related to (1) gains in emotional and cognitive development of the child, measurable improvements in educational processes and outcomes, and improved parent-child relationships; (2) the lessening or elimination of the negative effects of disadvantaged children's socioeconomic status (including poverty, race, language, gender, parental education, geographical residence) on academic achievement and other measures of pupil success; and (3) a reduced need to incur costs related to the prevention or remedy of non-productive outcomes or other unintended negative consequences.[14]

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[12] The opinions included in this paragraph are based on a summer 1999 personal communication to Dianne Kaplan deVries from a nationally prominent expert in school finance who has asked to remain anonymous until further refinement and publication of his findings, which are based on a review of some 1,329 cost-effectiveness studies contained in the ERIC database for 1991-96.

[13] Levin and Shank, *Educational Investment in an Urban Society*, p. 2. Also emphasized in personal communication (see footnote 2).

[14] Most of the ideas presented in the first three paragraphs of this section are echoed in the especially insightful synthesis of early childhood research and descriptions of effective school programs and practices serving at-risk children that are contained in Robert D. Barr and William H. Parrett's *Hope at Last for At-Risk Youth* (Boston: Allyn and Bacon, 1995).

An extensive and ever-growing body of research supports the use of early educational interventions to help disadvantaged children become better ready to learn by kindergarten age and to ensure that developmental delays identified during children's primary school years can be successfully overcome, or at least minimized, so that the learning gap between them and their age peers is reduced, along with a reduction in grade retention, school dropout, and asocial behaviors. Developmental delays are commonly associated with premature birth, low birth-weight, poor health and nutrition, poverty, racial isolation, English as a second language, dysfunctional or poorly functioning families, poor parenting skills, or parents with low educational attainment — though none of these "risk factors" necessarily explain the wide variation in cognitive, language, motor, and social/emotional development that all young children naturally exhibit.

As educators' understanding of child development has deepened over the past 15 years or so, most schools have adopted measures aimed at better meeting the learning needs of the young child at whatever developmental stage s/he is, rather than expecting all kindergartners to enter the schoolhouse equally ready to learn and/or capable of progressing at a singular, curriculum-driven pace. Accordingly, primary school classrooms nationwide have been placing increased emphases on (a) developmentally appropriate practices; (b) child-centered learning, often facilitated by the use of "learning centers" or "activity stations" placed around the classroom to promote hands-on learning and instructional opportunities more closely tied to children's interest; (c) early literacy skills, with teachers' efforts augmented by parental involvement and the encouragement of reading in the home; and (d) early instructional interventions for children identified as being developmentally delayed and who are therefore educationally at risk of failure. Georgia's SIA program fits perfectly within this "best practices" framework, and its curricular focus on reading is consistent with the precept that reading is fundamental for success both in school and life and is therefore a basic entitlement for all children.

Because there is a voluminous literature underlying such "best practices" — and because an analysis of the validity of the SIA program's conceptual foundations lies well beyond the scope of our cost-effectiveness focus — we will not address those supporting studies. Nor will we here enter into a discussion comparing SIA to the theories, methods, costs, and benefits of various other programmatic approaches to early intervention (e.g., Success For All, Accelerated Schools, Reading Recovery) or review the still-limited evidence supporting extended school day/year approaches (e.g., after-school and summer programs, year-round schooling). Rather, we will confine our presentation to some of the newer important studies that have a direct bearing on key aspects of SIA program operations and which may suggest cost-effective alternative policy directions.

Costs and Benefits of Early Intervention Programs. Research on early childhood programs demonstrates that well designed, carefully implemented early learning experiences can have an immediate positive impact on children's cognitive and social development. The evidence is quite strong that effective early interventions can produce desired long-term benefits as well. Greater investment in high-quality early learning would therefore seem warranted on both economic and social grounds.

Recent studies conducted by RAND demonstrate the wisdom of investing in early interventions and underscore the potential savings that local/state/federal government (hence taxpayers) realize when children and families participating in effective early interventions require lower public expenditures later in life.[15] To recount here but one example: Longitudinal study of the High/Scope Perry Preschool Project has shown that 27 years later, children who had participated for one or two school years in that program earned 60 percent more than comparable children who had not received those services. (In the mid-1960's, the Perry Preschool enrolled 123 disadvantaged African-American children in Ypsilanti, Michigan. It was a part-time program that included weekly home visits by the teacher.) Moreover, the Perry Preschool children made important gains throughout the years — by age 5, their IQ's showed statistically significant improvement; at ages 9 and 14, their achievement test scores were statistically better than the comparison group's; at age 19, they had spent less time in special education and enjoyed higher employment rates; and by age 27, they showed statistically greater high school graduation rates, lower incidence of crime/delinquency, higher income, and lower welfare participation. Best estimates underscore the fact that the Perry Preschool Project produced a savings to government much higher than the program's costs — RAND calculated the savings to be about $25,000 for each participating Perry family versus a cost of $12,000 per family (all in 1996 dollars). These benefits are under-estimated because benefits to mothers were not measured; moreover, the figures do not include the additional benefit to the overall economy, estimated at $24,000 per Perry family, of the extra income generated by participating families (over and above the taxes on that income).

Based on the Perry Preschool longitudinal study and other such research to date, RAND and most other researchers have concluded that (a) some targeted early intervention programs do indeed have substantial favorable effects on child health and development, educational achievement, and economic well-being; and (b) some of these programs, if targeted to families who will benefit most, have generated savings to the government that far exceed the costs of the interventions. However, much remains unknown about preschool interventions and all other kinds of early intervention strategies aimed at ensuring equal and adequate educational opportunity for all. Unanswered questions include the following: How early, and for what duration, must an intervention be provided? What is the optimal program design, and will that same model generate a similar level of benefits and savings when implemented in every community? How can early interventions be equitably and effectively targeted to those who

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[15] Lynn A. Karoly, Peter W. Greenwood, Susan S. Everingham, et als., *Investing in Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions* (Santa Monica, CA: RAND, 1998). In addition to the High/Scope Perry Preschool Project (Michigan, 1962-67), this important work analyzed the results of evaluations and follow-up studies of program participants during their K-12 school years for the following early childhood at-risk interventions: the Early Training Project (Tennessee, 1962-65), Project Head Start (multiple locations, 1965-present), Chicago Child-Parent Center (1967-present), Houston Parent-Child Development Center (1970-80), Syracuse Family Development Research Program (New York, 1969-75), Carolina Abecedarian (North Carolina, 1972-85), Project CARE (North Carolina Approach to Responsive Education, 1978-84), Infant Health and Development Project (multiple sites, 1985-88), and the Elmira Prenatal/Early Infancy Project (New York, 1978-82).

would most benefit? What are the implications of targeting decisions and eligibility criteria on program cost, implementation difficulty, and potential benefits of the intervention? What is the full range of benefits, the broad array of effects beyond the intervention's primary objectives?[16]

Teacher Quality and Pupil Achievement. A new study carried out by Linda Darling-Hammond found that a state's percentage of qualified teachers is one of the strongest predictors of its pupils' improvement on the National Assessment of Educational Progress (NAEP).[17] Defining a "qualified teacher" as an educator possessing both a full teaching license and at least a college major in the subject taught, she examined federal databases of teachers' qualifications and pupil performance, together with surveys of state policies conducted by the National Commission on Teaching and America's Future and state case studies. The federally sponsored study sampled NAEP scores of pupils in core subjects from 1992 to 1996.

Darling-Hammond's qualitative and quantitative analyses suggest that states' policy investments in the quality of teachers may be related to improvements in pupil performance. When aggregated at the state level, quantitative findings indicate that measures of teacher preparation and certification are by far the strongest correlates of pupil achievement in reading and math — i.e., that the quality of the teaching force (as measured by variables such as the percentage of teachers with full certification and a major in the field) is more influential in predicting pupil achievement than pupil characteristics such as poverty, language background, and minority status, although pupil demographics, too, are strongly related to pupil outcomes. Teacher quality variables were also found to have a greater effect on pupil achievement than class sizes, overall spending levels, or teacher salaries (unadjusted for cost-of-living differences). In addition to teachers' certification status and their having majored at the undergraduate level in the field being taught, certain policy strategies that included accreditation of teacher education

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[16] Not addressed here because the works extend far beyond the scope of our study are two other important RAND studies that we encourage readers to check out. They are: Georges Vernez, Richard A. Krop, and C. Peter Rydell's *Closing the Education Gap: Benefits and Costs* (Santa Monica, CA: RAND, 1999), which explores how much it would cost and what the benefits would be if Blacks and Hispanics graduated from high school, went to college, and graduated from college at the same rate as Whites. The second book: Peter W. Greendwood, Karyn E. Model, C. Peter Rydell, and James Chiesa, *Diverting Children from a Life of Crime: Measuring Costs and Benefits* (Santa Monica, CA: RAND, 1998), which examines and compares the costs and effectiveness of various early intervention approaches for at-risk children, from infancy through high school, versus the costs of incarceration and benefits of crime reduction. Both these books and *Investing in Our Children* are available online at *www.rand.org*.

[17] Linda Darling-Hammond, "Teacher Quality and Student Achievement: A Review of State Policy Evidence," *Education Policy Analysis Archives*, Jan. 1, 2000 (8:1). *EPAA* is a peer-reviewed scholarly electronic journal that can be accessed at *http://epaa.asu.edu*. An article about this study, entitled "State Teacher Policies Tied To Student Results," written by Jeff Archer, appeared in the Jan. 12, 2000, issue of *Education Week*, also available online at *www.edweek.org*.

institutions, district hiring standards, and state professional standards boards also appeared to be related to teacher quality.

Because the Darling-Hammond research draws inferences from broad state trends, she was unable to capture the widely varying local circumstances important in understanding relationships between teaching and schooling at the school and district levels. Her study has already come under the fire of many policy experts who question the value of state licensure rules and the extensive pedagogical (versus subject-matter mastery) requirements of teacher training programs, claiming that such restrictions are counter-productive, in that they have "the effect of limiting the potential supply of teachers by narrowing the pipeline while having no bearing whatever on the quality or effectiveness of those in the pipeline."[18]

School Size and Pupil Achievement. Finally, a recently released study of Geogia school size analyzed 29 different standardized test scores from 1,626 of the state's approximately 1,800 public schools.[19] Researchers found that as school size increases, the achievement scores in schools serving children from poorer communities fall. Small schools were found to be a major positive factor in pupil achievement among the poor, race notwithstanding. The good news is that Georgia's schools serving poorer communities, on average, are smaller than schools serving communities that are better off. But the bad news is that these smaller-than-average schools (who disproportionately serve African-American pupils) are still too large to optimize achievement, according to this study — these smaller-than-average Georgia schools enroll 60 percent of all third graders and 64 percent of fifth graders. The size of the schools places these and other children enrolled there at risk of lower achievement if the schools were to be enlarged. If those same schools were made smaller, their pupils' average achievement would likely increase.

The study's conclusions: To maximize pupil achievement, the poorer the community being served, the smaller the school should be. States seeking to improve pupil achievement, as measured by standardized tests, should consider placing maximum size limits on schools, particularly in poorer communities, and should not be eager to let fiscal pressures related to deteriorating school facilities dictate school consolidations or other school size increases. As an

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[18] Quote from "Better Teachers, Better Schools," edited by Marci Kanstoroon and Chester E. Finn, Jr., published in July 1999 by the Thomas B. Fordham Foundation in cooperation with the Education Leaders Council. (The full report is available at the Fordham website, *www.edexcellence.net.*) The quote was contained in a brief review of the report by the National Center for Policy Analysis, *www.ncpa.org* (article entitled "Report Advises Focusing On Results In Teaching").

[19] Robert Bickel, "School Size, Socioeconomic Status, and Achievement: Georgia Replication of Inequity in Education," as reported in the December 11, 1999, issue of *The Atlanta Journal-Constitution.* Bickel's study was sponsored by The Rural School and Community Trust, and an abstract of the work is available at the Rural Trust's website at *www.ruralchallengepolicy.org.* The study's report should become available via ERIC in late spring 2000.

Atlanta-Journal Constitution article pointed out, the study did not address why small schools are better for poorer pupils, nor did it *"explain dramatic exceptions, such as low-performing small schools in Atlanta, or huge high-performing schools in Gwinnett County."*[20] The Georgia findings were consistent with those of Texas and Ohio, two of the other three states in which similar studies were conducted to replicate an earlier California study of school size. (Of the four replication states, only Montana's findings were inconsistent, in part due to the extraordinarily small size and rural isolation of school districts, with average district size in the state being just one school.)

Costs and Benefits of Class Size Reduction. Class size reduction is instrumental to Georgia's SIA program. However, beyond the intuitive, common-sense appeal of class size reduction and its current political popularity nationwide, there is a complex, often conflicting, still inconclusive body of research underlying the use of class size reduction as a cost-effective policy option for improving pupil achievement. The Summer 1999 issue of *Educational Evaluation and Policy Analysis* (a quarterly journal of the American Educational Research Association) provides an analysis of the experimental and non-experimental research evidence on class size, summarizing the key findings and policy implications of the major studies to date.[21] Of particular relevancy to SIA are the two prominent state-level class reduction efforts described below.

- Project STAR, Tennessee's Student/Teacher Achievement Ratio experiment initiated by the Tennessee legislature in 1985, was the largest and longest-running controlled experiment ever conducted to examine the effects of class size on student achievement and development.[22] During the first year of this remarkable study, teachers and some

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[20] Doug Cumming, "Study: Rich, poor school gap increases with size," *The Atlanta Journal-Constitution*, December 11, 1999, Local News, p.G3.

[21] For readers interested in learning more about class size research, we suggest Jeremy D. Finn's paper, "Class Size and Students At Risk: What Is Known? What Is Next?" Finn's work was commissioned by the National Institute on the Education of At-Risk Students, U.S. Department of Education/OERI and is available online at *www.ed.gov/pubs/ClassSize*. A similar, but briefer, research synthesis is provided in Ivor Pritchard's paper, "Reducing Class Size: What Do We Know?" Pritchard is with the National Institute on Student Achievement, Curriculum and Assessment, U.S. Department of Education/OERI, and his revised March 1999 paper is available online at *www.ed.gov/pubs/ReducingClass*.

[22] Here we have summarized some of the STAR findings reported in "Tennessee's Class Size Study: Findings, Implications, Misconceptions," by Jeremy D. Finn and Charles M. Achilles; "The Political and Institutional Origins of a Randomized Controlled Trial on Elementary School Class Size: Tennessee's Project STAR," by Gary W. Ritter and Robert F. Boruch ; and "The Long-Term Effects of Small Classes: A Five-Year Follow-Up of the Tennessee Class Size Experiment," by Barbara Nye, Larry V. Hedges, and Spyros Konstantopoulos — all presented in *Educational Evaluation and Policy Analysis*, Summer 1999 (21:2), 97-142.

6,000 kindergartners in 329 classrooms (representing 79 schools and 46 districts) were randomly assigned to one of three types of classrooms — a small class (13-17 students), a regular class (22-26 students), or a regular class in which the teacher was supplemented by a full-time teacher aide — and were assigned to the same type of classroom during grades 1-3. Over the course of the four-year intervention, almost 12,000 students participated and were administered extensive batteries of norm- and criterion-referenced tests, learning behavior assessments, teacher and researcher observations, and other such measures. The study's design allowed researchers to examine the effects of class size reduction by race, gender, and socioeconomic status; the teacher aide class type also tested whether reducing a classroom's student:teacher ratio (or more precisely, the ratio of students to classroom adults) would produce similar effects to reducing actual class size.

The extensive research that accompanied Project STAR showed that smaller class sizes resulted in improved teaching conditions, improved student performance during and after the intervention years, increased student engagement in learning, fewer classroom disruptions and discipline problems, and fewer student retentions. No significant differences in achievement were found between students who attended regular classes and those from regular-sized classes enhanced with a teacher aide. More importantly, K-3 students in small classes statistically outperformed students in the other two class types on all achievement measures and in all subject areas in every year of the experiment. The small-class effect size was greatest for students in grade one, followed by those in grades two and three, and least (though still significant) for kindergartners. The small-class advantage was found to be equal for boys and girls alike, though race/ethnicity and school location made a difference, with student achievement benefits found to be substantially greater for minority students or students attending inner-city schools. Although the small-class advantage for White students was statistically significant, the benefit for minority students (most of whom were African American) was about two to three times as large as that for Whites. The impact of small classes not only accelerated learning gains for minorities while also increasing the gains of Whites, but also the small classes were successful in reducing the achievement gap between the two races on every test.

Moreover, the STAR intervention produced a carryover effect after students returned to regular-sized classes in grade four at the end of the experiment — i.e., the small-class advantage was found to be statistically significant for all school subjects in every subsequent year at least through grade seven (which is where ongoing longitudinal analyses have been completed to date). Students in grade four who had been in small classes were also found to exhibit superior behaviors related to academic engagement — e.g., they expended more effort on learning, showed more initiative-taking, were less disruptive or inattentive during class.

Based on the encouraging results of the STAR experiment, Tennessee lawmakers initiated Project Challenge in fall 1989, reducing classes for students in grades K-3 in 17 small rural districts that had the highest percentage of free or reduced-price lunch participation among students and had been performing well below the state averages in reading and math.[23] Project Challenge's 15:1 pupil:teacher ratio was incrementally introduced, beginning with grades two and three in 1990, grades 1-3 in 1991, and K-3 in 1992 and later years. Subsequent to the class size reductions, these districts moved close to the average in reading and above average in math. In terms of school district rankings on statewide achievement tests, the 17 Challenge districts' grade two reading performance went from a mean ranking of 99th (out of Tennessee's 138 districts) in 1990 to 78th in 1993, and grade two math performance moved the districts from a mean ranking of 85th in 1990 to 57th in 1993. Given the incremental way Project Challenge was implemented, it is important to note that each additional year in a small-class setting was accompanied by students' further improvements in reading and math.

Another legacy of Project STAR were provisions in Tennessee's 1992 Education Improvement Act mandating class sizes of 20 for grades K-3, 25 for grades 4-6, and 30 for grades 7-9, and by the 2000-01 school year, primary classes are not to exceed 18 students.

- Wisconsin's SAGE program (Student Achievement Guarantee in Education) began in 1996-97 as a 5-year K-3 pilot project targeted toward schools with a high proportion of students living in poverty.[24] Participating SAGE schools were required to implement four interventions: (a) reduce the pupil-teacher ratio within a classroom to 15 students per teacher; (b) establish "lighted schoolhouses" open from early morning until late evening; (c) develop rigorous curricula; and (d) create a system of staff development and professional accountability. Several classroom types were employed, including regular classrooms (with 15:1 student:teacher ratios), two-teacher team classrooms (30 students taught by two teachers, in effect making it a 15:1 ratio), and floating teacher classrooms (where 30 students are taught by one teacher, except during reading, language arts, and math, when another teacher joins the class to reduce the ratio to 15:1). State funding was set at a maximum of $2,000 per low-income student enrolled in SAGE classrooms.

  Results for the evaluation of the first two years of the SAGE program, during which time only the class size reduction requirement was immediately and

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[23] Project Challenge is described in Ritter and Boruch's journal article, "The Political and Institutional Origins of a Randomized Controlled Trial on Elementary School Size" (previously cited), and in Finn's paper, "Class Size and Students At Risk" (also previously cited).

[24] Our description of the SAGE program is drawn from "Evaluating the SAGE Program: A Pilot Program in Targeted Pupil-Teacher Reduction in Wisconsin," by Alex Molnar, Philip Smith, John Zahorik, Amanda Palmer, Anke Halbach, and Karen Ehrle, in *Educational Evaluation and Policy Analysis*, Summer 1999 (21:2), 165-77.

uniformly implemented at the K-1 grade levels in 30 schools in 21 districts, reveal student achievement findings consistent with the Tennessee STAR experiment. African-American SAGE students scored significantly higher on all subscales of the Comprehensive Test of Basic Skills (CTBS) and had significantly higher total scale scores than African-American comparison school (non-SAGE) students. SAGE African-American students also achieved greater gains than White SAGE students, and the achievement gap between the two races was substantially narrowed. Both socioeconomic status (SES, measured as eligibility for subsidized lunch) and student attendance were found to be statistically significant — i.e., both lower SES and lower attendance are related to lower post-test scores. As with Project STAR, no differences in student performance were found that were related to type of SAGE classroom organization — a finding which suggests that the benefits of class size reduction may be achievable without the attendant capital costs of building additional classrooms.

Of the four SAGE interventions, only class size reduction has made a significant difference in student achievement. Neither a rigorous curriculum, staff development, nor a lighted schoolhouse has thus far produced any significant impact. However, SAGE findings indicate that class size reduction does not directly influence academic achievement. Rather, class size is mediated by classroom events — i.e., a reduction in class size must first influence what teachers and students do in the classroom before any possible effects on student learning can be realized.

SAGE findings from teacher interviews, classroom observations, teacher logs, and teacher questionnaires that focused on classroom changes related to reduced class size are remarkably similar to those obtained over the course of Georgia's comprehensive evaluation of the SIA program. This is especially true in SAGE and SIA teachers' accounts of how smaller classes impact student learning — that reduced class size permits movement toward more student-centered teaching, wherein teachers better know each student's learning needs, are able to correct misunderstandings instantly, and can provide the level of individual attention needed by struggling young children. SAGE conclusions suggest that

> *having fewer students permits teachers to know students better, results in more time for instruction (because it reduces misbehavior and time needed to manage the classroom), and leads to greater teacher satisfaction and pleasure regarding teaching. These three elements — student knowledge, instructional time, and teacher satisfaction — come together to permit more individualized instruction...and more use of hands-on activities.*[25]

- Existing non-experimental evidence about class size appear far less promising,

[25] Ibid, p.176.

however.[26] Hanushek's review of almost 300 econometric investigations of the determinants of student achievement failed to find any consistent evidence that lower student:teacher ratios have a positive effect. He also points to other meta-analyses showing that only aggressive reduction programs (e.g., getting class sizes down to around 15 students) can be expected to have an impact.

Hanushek's interpretation of the STAR data leads him to conclude that (a) the positive effects of class size reduction appear limited to kindergarten and, possibly, first grade;
(b) the efficacy of teacher aides as a class size reduction tool is questionable; and (c) variation in teacher quality far exceeds any average effects of reduced class size. Nevertheless, he admits that —

> *The evidence does not say that small classes never matter. Nor does it say that small classes can never be used to elevate achievement. To the contrary, one way of reading the econometric evidence is that sometimes small classes are useful and other times they are not....If there truly is a range of effects, one of the real challenges of school management is figuring which students, teachers, or subject matters may be most affected by reduced class sizes and which would not be affected by increased class sizes. One important example is that disadvantaged students may be more sensitive to variations in class size than are advantaged students. This result is clear [in previous Hanushek work] where class size variation [was found to have] no significant impact on students ineligible for free or reduced-price lunch but has some impact (although again small) on eligible students. Grissmer [in this journal issue] similarly suggests that Black students are much more sensitive to reduced pupil-teacher ratios than are White students. These examples indicate that, if implemented, policy applications must focus on strategic use of reduced class sizes.*[27]

Hanushek argues that from a policy perspective, class size reduction is one of the most costly reform policies actively being discussed at the state and national levels today. He cautions that even if reducing class sizes can produce positive effects, those improvements must be sufficiently large to justify the expenditure. *"The ultimate effect of any large-scale program to reduce class size,"* insists Hanushek, *"will depend much more importantly on the quality of new teachers*

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[26] Eric A. Hanushek, "Some Findings From an Independent Investigation of the Tennessee STAR Experiment and From Other Investigations of Class Size Effects," in *Educational Evaluation and Policy Analysis*, Summer 1999 (21:2), 143-63.

[27] Ibid, p.159.

hired than on the effects of class size reductions per se."[28] Indeed, in his research elsewhere, he has found that teacher quality is the best predictor of student achievement, far more than SES, parental involvement in education, or specific instructional interventions.[29]

Clearly much more research on class size reduction needs to be done, particularly studies that utilize hierarchical linear modeling statistical methods in examining student-, classroom-, and school-level longitudinal data. Nevertheless, the policy implications of Tennessee's Project STAR, Wisconsin's SAGE program, and the numerous smaller-scale class size reduction studies reviewed in this journal issue are of immediate value and therefore merit careful consideration as Georgia re-examines its SIA program. In the words of Grissmer's concluding paper:

> *The evidence shows significant short-term achievement gains occur for three or four years in small classes in the K-3 period. The evidence is less clear and somewhat inconsistent as to whether these gains result primarily in the first and second year in small classes, or whether a significant part occurs in the third and fourth year [of the intervention]. However, the evidence on long-term gains — the most important measure — indicates significant gains only for the third and fourth years in small classes in all subjects. So current evidence would support reductions in all grades from K-3 if higher sustained achievement were the objective.*
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> *Targeting [class size reductions] toward minority and lower income students substantially reduces the cost and raises the predicted short-term gain per student. So reductions should focus on those schools with large*

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28 Ibid., p.159.

29 Hanushek briefly presented these new findings from his work in Texas at the Fourth Annual National Conference for Education Leaders, Dec. 4, 1999, Orlando, FL. Some of his remarks are found in his NBER Working Paper 6691 entitled "Teachers, Schools, and Academic Achievement" (Cambridge, MA: National Bureau of Economic Research, 1998). Concurring with Hanushek that teachers are the single most important influence on student progress was his CEL conference co-presenter William L. Sanders, whose value-added assessment system is an integral part of Tennessee's 1992 Educational Improvement Act and who has closely examined the relationship between teacher effects and student achievement in that state. (His Tennessee teacher study is described in "Teacher and Classroom Context Effects on Student Achievement: Implications for Teacher Evaluation," *Journal of Personnel Evaluation in Education* 11(1):57-67. For a brief overview of his value-added approach, see Jeff Archer's article, "Sanders 101" and the electronic links it provides in *Education Week,* May 5, 1999, at www.edweek.org.)

proportions of minority and low-income students first. Although short-term gains in achievement are smaller for remaining students, it is not clear how the effects change as we move into schools with higher proportions of high-income students. Long-term NAEP trends would indicate little evidence for gains among more advantaged students. So the return on investing in smaller class sizes for these students is certainly more uncertain and more risky.

In implementing class size policies, more rigid rules imposed at the grade and school level significantly raise costs. Decisions at the margin on class size can probably best be done locally, so local discretion with policies targeted broadly across grades and school districts seems more sensible than imposing them by grade and school.

Research currently has little to say about the broader decisions concerning reducing class size versus making alternative investments such as increased public pre-kindergarten, higher teacher salaries, providing better facilities and more resources for teachers, and investing in summer and after-school programs. There is almost certainly greater reliability in the evidence that [class size reductions] will bring achievement gains. However, greater reliability does not mean that it is the best investment.

Justifying [class size reductions] strictly on achievement may considerably understate benefits. Primary effects may be on delinquency, years of future education, future employment, and welfare utilization. These effects also carry direct costs to society that can ultimately be related to the cost of the intervention.

....[T]*he opportunity costs of [class size reductions] are high both because they are expensive and because they are hard to reverse if other investments are later found to be more cost-effective. The irreversibility stems from the visibility and political popularity of [class size reductions], which make it hard to backtrack. The second reason is that there will arguably be diminishing returns as class sizes are reduced to lower levels. It is not clear at present how quickly returns might decline, so it is possible to make too much reduction.*[30]

Finally, the National Research Council's Committee on Education Finance has recently weighed in on cost-effective investment policies aimed at improving student achievement. They concur that both teacher quality and class size are significant factors that influence student outcomes, especially for at-risk children. Some of their conclusions are as follows:

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[30] David Grissmer, "Conclusion — Class Size Effects: Assessing the Evidence, its Policy Implications, and Future Research Agenda," in *Educational Evaluation and Policy Analysis*, Summer 1999 (21:2), 231-48;quotes are from pp. 242-43.

The Committee is persuaded by the evidence ... that teacher quality matters for student achievement. At the same time, we note that research has not been able to systematically link teacher quality to traditional teacher measures, such as experience or holding a master's degree. These measures are of particular interest for finance, since they are the ones that are linked to teacher pay and hence affect the cost of providing education.[31]

...[R]*educing class size is often an attractive option for policy makers focusing on improving education for at-risk students. It is something they can legislate and implement relatively quickly, while methods of improving teacher quality are more indirect and uncertain. Evidence ... consistently shows that smaller class sizes result in larger achievement gains for poor, minority, and urban children than for other students. The key questions ... are likely to be ones of trade-offs: Are qualified teachers available for the additional classrooms, so that teacher quality will not be affected? Does a school or district have reason to conclude that other investments (to improve teacher quality or to provide one-on-one tutors or longer school days or years or summer school) align more closely with their overall programs for augmenting the intensity and duration of instruction provided to disadvantaged students?*[32]

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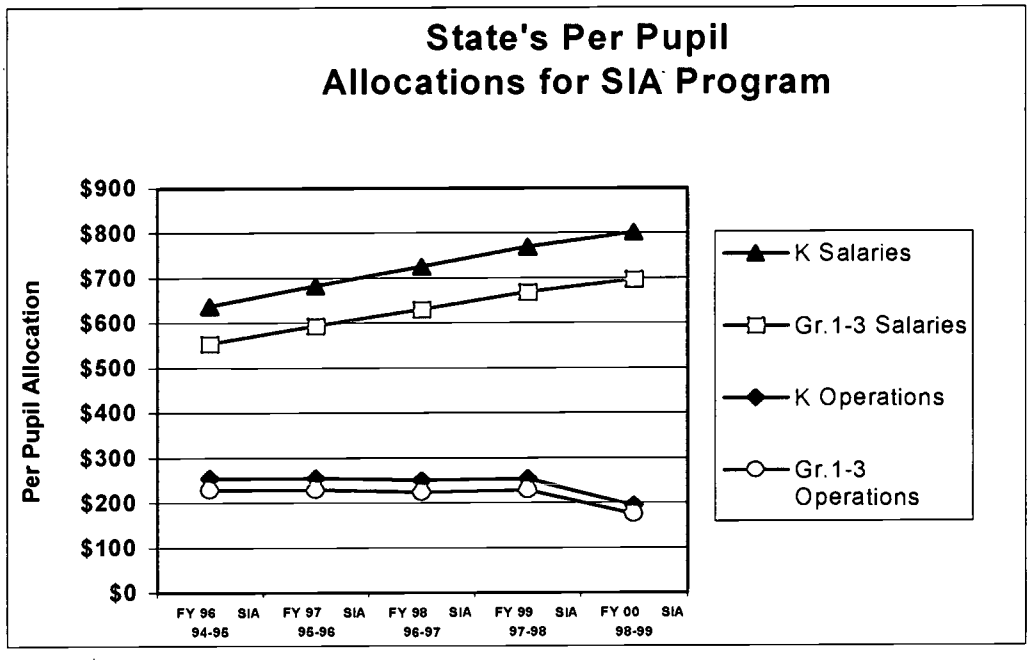
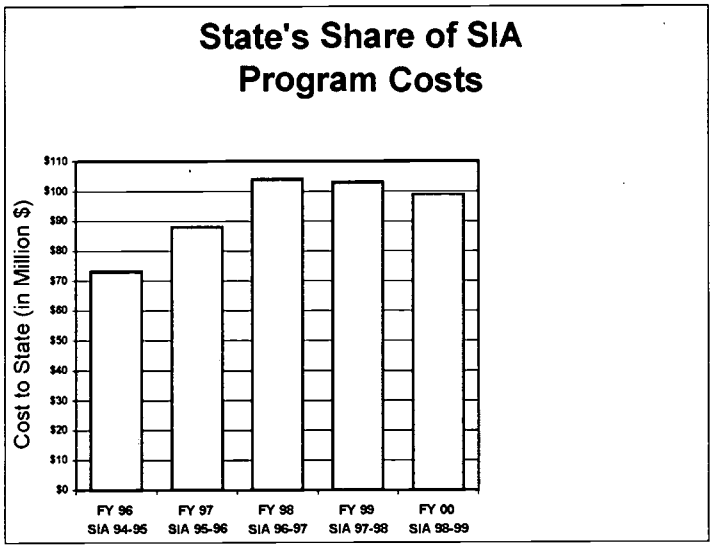
[31] Helen F. Ladd and Janet S. Hansen, eds., *Making Money Matter: Financing America's Schools,* a report of the National Research Council, Commission on Behavioral and Social Sciences and Education, Committee on Education Finance (Washington, DC: National Academy Press/National Academy of Sciences, 1999), p. 168.

[32] Ibid., p. 212.

Appendix G: SIA Program Cost and Enrollment Figures





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