

# RESEARCH

*Report on an Educational Program*  
Department of Research and Accountability

## **CLASS-SIZE REDUCTION PROGRAM 2001–2002**

Houston Independent School District



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## EXECUTIVE SUMMARY

### CLASS-SIZE REDUCTION PROGRAM 2001–2002

#### Program Description

In 1998, President Clinton designed the Class Size Reduction Initiative to help improve student learning by hiring additional, highly qualified teachers so that elementary children in the early grades could attend smaller classes, especially in schools with high concentrations of poverty (Clinton, 1998; Texas Education Agency, 2002). Title VI of the Elementary and Secondary Education Act authorized Class-Size Reduction funding for fiscal years 1999, 2000, and 2001 as contained in the Department of Education Appropriations Act of 2001. The directive represented a continuation of the intent of the Civil Rights Act of 1964 to address inequities in American education.

In this third year of the Class-Size Reduction program (CSR or CRP) implementation, the Houston Independent School District was awarded 4% over last year's funding for the Class-Size Reduction program, bringing the grant to \$9,171,626 to reduce the class size in grades kindergarten through third. Additionally, roll-forward funding from the previous school year of \$1,875, resulted in a total CSR budget of \$11,046,626 for the 2001–2002 school year. Consistent with budget allocations in the previous year, seventy-two percent of the funds was provided for hiring and training new teachers. Twenty-five percent of the funds was allocated for the professional development of new and experienced CSR teachers, and three percent was designated to cover local administrative costs (Texas Education Agency, 2001).

The 2001–2002 Class-Size Reduction endeavor involved 190 CSR teachers and 3,194 students from 162 elementary schools throughout the 13 HISD administrative districts. HISD's fundamental goal for the initiative was to reduce class size in grades kindergarten to third to improve student achievement for the students who participated in the CSR program, and to improve student achievement for the students whose

regular class size was reduced by CSR student participation in the program.

To address the diverse needs of the participating campuses, three approved Class-Size Reduction models were implemented across the district. First, the Single Class Model is one in which the teacher provided instruction in all subjects to 18 or fewer students in a single classroom setting. Second, the Team Teaching model is one in which the Class-Size Reduction teacher teamed with the regular classroom teacher to provide direct, small group instruction and assessment. Third, the Small Group Instruction Model is one in which the Class-Size Reduction teacher provided daily instruction in one or more subjects for a minimum of three 90 minute blocks of time. A maximum of 18 students were to be assigned to each CSR teacher, regardless of the classroom model implemented.

The purpose of this evaluation was to describe the implementation of the Class-Size Reduction program in relation to the stated goals and to determine its effectiveness on student achievement. The following research questions were posed:

1. How was the Class-Size Reduction program implemented across the district?
2. What was the attendance and rate of effectiveness of the Class-Size Reduction professional development teacher training?
3. What was the academic performance of students participating in the program?
4. What was the academic performance of students in the regular classrooms?
5. What were the teachers' perceptions of the Class-Size Reduction program?

6. What program strengths and weaknesses were articulated by the teachers?

### Findings

- A districtwide effort to uniformly implement and assess the 2001–2002 Class-Size Reduction program was supported from Central Administration and district administrative offices to campus administration and CSR teachers. The primary areas addressed included: adherence to an approved classroom model, assignment of full-time CSR teachers with only CSR responsibility, maintenance of an 18-student limit per CSR teacher for a minimum of 90 instructional minutes daily, and CSR instruction to cover content areas necessary for each student to obtain a well-rounded academic program. Previously, reading instruction was the primary instructional focus.
- The 3,194 CSR participants consisted of 151 kindergarten students, 1,504 first graders, 750 second graders, and 789 third graders.
- Approximately 89% (2,830) of the CSR students were identified as first-year participants, 7% (225) were second-year participants, and less than 1% (12) were third-year participants. Related data were not submitted for about 4% (127) of the students.
- Reductions in class size ranged from one to eighteen students per classroom. Average class size reductions were seven students at kindergarten, five at first grade, four at second grade, and six at the third grade level.
- According to reports for 184 CSR classrooms, 33% (n=1,048) of the students were in the Single Class Model, 9% (n=297) in Team Teaching, and 58% (n=1,820) in Small Group Instruction.
- Student assignment to CSR classes was largely nonrandom. Seventy-three percent of the participants were selected based on low academic performance; 18% were selected to reduce the regular teacher's class size, 7% were chosen randomly, and less than 2% were selected for reasons related to Limited English Proficient (LEP)/bilingual instruction or student behavior.
- On a daily basis, the amount of instructional time in a reduced class setting ranged from 30 minutes to a full day, with the largest group of participants (49%) receiving 90–110 minutes of CSR instruction, and the second largest group of students (37%) receiving a full day of CSR instruction.
- The largest portion of the participating schools offered reading (95%) followed by language arts (79), math (77%), social studies (60%), science (56%), English as a Second Language/ESL (11%), and 6% taught "other" subjects including health, physical education, spelling, handwriting, and art. The extent to which content areas were taught in CSR classrooms improved by 1% in reading, 33% in language arts, 51% in mathematics, 38% in social studies, 36% in science instruction, and 9% in "other" subjects.
- CSR classroom facilities differed. Specifically, 64% of Teacher Survey respondents reported instruction took place in a self-contained classroom, while 23% indicated instruction took place in a shared classroom with as many as three classes sharing one regular classroom space. Additionally, 20% reported teaching in temporary buildings or converted spaces and approximately 19% stated classes were conducted in a cafeteria, closet, stage, hallway, church, or other untraditional educational area. Respondents indicated 10% fewer CSR teachers conducted instruction in a self-contained learning environment than last year, 1% more conducted classes in shared classrooms, and the percentage of those who taught in temporary or converted spaces almost tripled from 6.8% last year to 20% in the current year.
- Most CSR teachers (52%) had 11 or more years of professional teaching experience. Twenty-one percent had six to ten years experience, 8% had three to five years of experience, 18% had less than three years of experience.
- Direct observation of twenty classes revealed that teachers offered guidance to help students in 100% of the observed classrooms, regardless of the model. Teachers offered whole class instruction in 95% of the classrooms, all students were engaged in classroom discussion in 86% of the observed classes, and students were monitored for progress in 81% of the classrooms. Further,

peer tutoring (27%), student grouping (21%), and student choice in selecting learning activities (3%) occurred in fewer classrooms than the other observed activities.

- Direct observation of twenty-one CSR classes regarding nine implementation categories concerning the educational setting, equipment, educational resources, classroom atmosphere, and student engagement indicated that 80% to 100% of the Single model classrooms rated high in four categories, 71% to 86% rated high in four categories, and 57% rated high in student engagement, the remaining category. Further, 75% to 100% of the Team Teaching classrooms rated high in all but one category, classroom facilities, with 50% rating high in that category. In addition, 80% to 100% of the Small Group classrooms rated high in five categories and 20% to 40% rated high in the remaining four categories.
- Professional development topics for Class-Size Reduction teachers increased 136%, from 11 different topics offered last year to 26 provided this year including three non-reading related topics.
- On a scale from one to four with one being the least effective, teachers rated the professional development workshops. The average ratings ranged from 2.9 to 3.6, with each workshop scoring between 3.6 and 3.2, except one.
- There was a total of 46 approved Title VI private nonprofit schools within the HISD Administrative District boundaries invited to participate in all of the professional development training. Thirty-eight participants attended 13 training sessions from private nonprofit schools.
- To promote home involvement, Class-Size Reduction students received a Spanish or an English Metropolitan Teaching and Learning literacy bag, containing several books, a dry-erase writing board, and a marker. A Sunshine At Home parent-child reading program and teacher guide were included.
- Based upon teacher survey items concerning CSR classroom experiences, the following items, received the most agreement: more hands-on activities, more often involving students in problem solving, creating, and experimenting, more often based activities on students' prior knowledge and interests, more in-depth coverage, more time teaching rather than managing, and more time with individual students planning and implementing learning activities.
- Based upon teacher perceptions regarding the program strengths, enhanced instruction, increased academic achievement for students at-risk of failing, and professional development opportunities were the most frequent responses.
- Based upon teacher perceptions regarding the program challenges, the lack of program support in terms of guidelines, inadequate facilities and materials, professional development schedule and topics, and the selection of at-risk students were the most frequent responses.
- Class-Size Reduction teachers recommended maintaining consistent guidelines from the start of school (n=11), providing campus support to CSR teachers (n=4), providing more support to bilingual teachers (n=4), providing adequate facilities (n=4), adjusting classroom models (n=56), providing more equipment and materials (n=17), improving focus on content areas (n=2), offering workshops at different times (n=6), scheduling workshops on additional topics (n=9), and changing the criteria for student selection (n=3). Some teachers explicitly recommended continuation or extension of the program (n= 16).
- On the Stanford 9 spring 2002 reading subtest, 77% of the kindergarten CSR students scored at or above grade level, while a greater percentage of first through third grade students scored below grade level. Specifically, 70% at first grade, 83% at second grade and 85% at third grade scored below grade level. On the Aprenda 1 spring 2002 reading subtest, 60% of the CSR kindergarten students, 43% at first grade, 40% at second grade, and 39% at third grade performed at or above grade level.
- On the Stanford 9 spring 2002 mathematics subtest, 64% of CSR kindergarten students, 80% at first grade, 74% at second grade, and 72% at third grade performed below grade level than at or above

grade level. On the Aprenda 1 spring 2002 mathematics subtest, 79% of the CSR kindergarten students, 76% at first grade, 63% at second grade, and 62% at third grade performed below grade level.

- Comparing CSR student performance for 2001 and 2002, using the Stanford 9 reading subtest, grade 1 showed an increase in the average NCE score (12.09 NCEs). Grades 2 and 3 showed decreases of 8.33 and 2.89 NCEs, respectively. Comparing CSR student performance for 2001 and 2002, using the Aprenda 1 reading subtest, an increase of 14.37 NCEs occurred at first grade on the reading subtest. However, at second and third grade, decreases of 6.20 NCEs (n=164) and 6.41 NCEs (n=97) occurred, respectively.
- Comparing CSR student performance for 2001 and 2002, using the Stanford 9 mathematics subtest, the largest academic gains occurred at first grade with an increase of 17.91 points, followed by third grade with a 0.07 point increase. Second grade scores decreased by 3.99 points. Comparing CSR student performance for 2001 and 2002, using the Aprenda 2 mathematics subtest, students in grades 1 and 2 showed increases of 10.03 NCEs and 0.45 NCEs, respectively in the average NCE score while grade 3 showed a decrease of 2.74 NCEs.
- On the 2002 Stanford 9 reading and mathematics subtests, first grade regular classroom students showed increases on reading and mathematics subtests (15.21 and 18.30 NCEs, respectively). Third grade students showed an increase on the Stanford 9 mathematics subtest (1.05 NCEs). On the Aprenda 1 spring 2002 reading and mathematics subtests, increases occurred for regular classroom first graders on both reading and mathematics subtests by 19.02 NCEs and 15.66 NCEs, respectively. Additionally, an increase occurred at second grade in mathematics by 2.32 NCEs.
- On the Stanford 9 reading subtest, a greater percentage of regular classroom kindergarten students (78%) performed at or above grade level followed by grade 1 (52%) while the greater percentage of students at grades 2 and 3 performed below grade level, 62% and 64%, respectively. The percentage of regular classroom students at or

above grade level on the Aprenda 1 reading subtest was greater than the percentage of students scoring below grade level, 82% at kindergarten, 74% at grade 1, 70% at grade 2, and 68% at third grade.

- On the Stanford 9 spring 2002 mathematics subtest, a greater percentage of regular classroom students performed below grade level with 55% at kindergarten, 60% at first grade, 53% at second grade, and 54% at third grade. On the Aprenda 1 mathematics subtest, with the exception of kindergarten students, a greater percentage of regular classroom students performed at or above grade level at all grade levels with the percentage ranging from 64% at grade 2 to 43% at kindergarten.

### Recommendations

1. For classroom stability, consider maintaining clear guidelines from the start of the year, and utilizing one classroom model. Consider funding only campuses with appropriate facilities.
2. Implement utilization of identified SASI fields to improve accuracy in tracking program participants.
3. Expand training topics to include intervention strategies for various student groups, learning styles, and content areas to address the expressed needs of teachers. Consider offering computer-based training modules for increased training availability.
4. Consider further assessment of effective training through classroom observations to determine strategies utilized.
5. Consider maintaining an internal accountability system to assess the critical program components that are delineated by state and federal guidelines.
6. Consider re-evaluation of program infrastructure to monitor classrooms, provide support to teachers, and communicate implementation concerns to the Central Office. Routinely utilize the abbreviated classroom observation instrument to uniformly assess implementation.
7. Consider conducting ongoing parent support workshops to expose parents to the program and assist them with selecting academic materials to support classroom learning at home.

## CLASS-SIZE REDUCTION PROGRAM 2001–2002

**Purpose:** To describe Class-Size Reduction implementation in relation to the stated goals and to determine program impact on the academic achievement of program students.

**Design:** Descriptive, Qualitative and Quantitative.

**Population:** Kindergarten, first, second, and third grade students from participating elementary schools were the target population.

**Methods:** Principal and teacher surveys, and electronic student rosters were submitted by participating schools. Classroom observations were undertaken in twenty-one schools. Student and teacher demographic data, and regular class size were extracted from the 2001–2002 Public Education Information Management System (PEIMS), and the Schools Administrative Student Information (SASI) System. Academic achievement was based on Spring 2002 Stanford 9 and Aprenda 1 tests data. Additionally, informal interviews were conducted with program staff.

**Findings:** Implementation of CSR models varied by facilities, class size, student program, teaching experience, and subjects taught. Student assignment was generally nonrandom, with a majority of low performing participants. SASI fields were identified for future tracking of participants. Kindergartners scored higher, overall, and first graders more consistently showed gains in achievement. Aprenda scores were often higher than Stanford 9. Except for grade K in reading, a greater percentage of CSR students' reading and math NPR scores were below grade level. Except for grade K in math, regular classroom students scored at or above grade level on the Aprenda 1 and on the Stanford 9 reading at grades K–1.

**Conclusions:** Learning opportunities afforded by the program provided valuable academic assistance to primarily low performing students. Some achievement gains were apparent. Yet, it is unclear if scores were impacted by statistical artifacts related to the assessment instruments or program design, including sampling and simultaneous interventions.

**Educational Implications:** This analysis supports prior research indicating that early grade classrooms with 18 or fewer students allow more time for instruction to address individualized student learning needs, especially with lower performing students.

### Introduction

#### Program Description

In 1998, President Clinton reauthorized the Elementary and Secondary Education Act (ESEA) of 1965 and proposed the Class Size Reduction program, under Title VI of the ESEA. This constituted the nation's first initiative designed to reduce class size to a maximum of 18 students in the early grades, particularly in urban school districts with high concentrations of poverty. The goal was to hire 100,000 new teachers to reduce the class size in the first, second, and third

grades across America (Clinton, 1998). In the third year, the national budget for the 2001–2002 Class-Size Reduction program was \$1.6 billion to fund the recruitment, hiring, and training of approximately 30,000 teachers (U. S. Department of Education, 2002). Subsequently, the January 2002 passage of President Bush's *No Child Left Behind Act* of 2001 reauthorized the Elementary and Secondary Education Act, and instituted an alternative federal initiative focused on high-stakes achievement tests, ultimately, to be used to sanction low performing public schools (Texas Education Agency, 2002). The renewed national focus

on academic standards further encouraged the ongoing debate on the inequality of public schools in America. Class size and school size have remained key factors in educational reform because students in schools with large populations of disadvantaged students do not perform as well on standardized assessments and often have the least experienced teachers (Roza, 2001). Post “bell curve” research has determined that every student has the capacity to learn, supporting the fundamental concept that no student should be left behind in the learning process. Class-Size Reduction is an expensive endeavor (Odden & Picus, 2002), and although scientific debates persist on the efficacy of Class Size Reduction programs, there have been conclusive findings that link reduced class size to improved literacy skills and increased student achievement in the lower grades (Wasley, 2002), especially for at-risk groups including African American, Latino, and low-income students (National Black Caucus of State Legislators, 2001).

The impetus for Class-Size Reduction programs was grounded in solid research and common sense geared toward improving student achievement (Achilles, 1999). Research indicates that lowering class-size in the early grades produced significant and lasting benefits for both students and teachers, including:

- allowing teachers to spend more time on instruction and less time on discipline;
- giving teachers the ability to provide more individualized instruction;
- providing students with more rapid educational progress than students in larger classes; and,
- yielding substantial benefits to our country's most disadvantaged students (Clinton, 1999).

The 2001–2002 Class-Size Reduction program in the Houston Independent School District has continued to represent the Clinton initiative designed to help urban school systems, such as HISD, improve student learning by hiring additional teachers so that children in kindergarten through the third grade could attend classes that did not exceed 18 students. This extensive endeavor involved 3,194 students attending 162 elementary schools in the 13 administrative districts (**Appendix A**). The district's goal for the initiative was to reduce class size to improve student achievement for the students who participated in the CSR program, and to improve student achievement for the students whose regular class size was reduced by the CSR program.

To address the diverse needs of the participating campuses, three Class-Size Reduction models were implemented across the district. The number of teachers that implemented each type of CSR classroom model included the following: Single Class Model (n=65), Team Teaching (n=17), and Small Group Instruction (n=102). First, the Single Class Model is one in which the teacher provided instruction in all subjects to 18 or fewer students in a single classroom setting. Second, the Team Teaching model is one in which the Class-Size Reduction teacher teamed with the regular classroom teacher to provide direct/small group instruction and assessment. Third, the Small Group Instruction Model is one in which the Class-Size Reduction teacher provided daily instruction in one or more subjects for a minimum of three 90 minute blocks of time.

## Review of Literature

Class-Size Reduction programs are some of the most popular and expensive endeavors in contemporary education reform (Odden & Picus, 2002). Many questions have been raised with respect to individual studies on the benefits of Class-Size Reduction, resulting in claims from organizations including The Heritage Foundation that there is no evidence to support the positive effects of Class-Size Reduction programming (Rees & Johnson, 2000). However, a host of research endeavors have consistently suggested several conditions that support the positive effects of Class-Size Reduction, including:

- Thoughtfully planned and adequately funded, small classes in the early grades generate gains for students that increase the longer students are exposed to reduced-size classes;
- Gains are larger when fewer than 20 students are in the early grades;
- Gains occur in a variety of academic disciplines for both traditional and other indicators of educational achievement;
- Students retain their gains after placement in standard-size classrooms and in subsequent grade levels;
- All types of students benefit, but greater gains are found among students who have traditionally been disadvantaged in America's educational environment;
- Traditionally disadvantaged students carry greater

gains forward in the higher grades and beyond, based on initial results;

- Gains apply equally to girls and boys; and
- Gains in the upper grades are inconclusive (Biddle and Berliner, 2002).

Class-Size Reduction initiatives have gained popularity largely because of the extensive attention to the program benefits. However, such improvements occur when students in reduced class settings experience conditions that are conducive to learning. Therefore, the extent to which program implementation factors affect student academic achievement is a key factor in much of the contemporary studies (Cohen, Raudenbush, & Ball, 2000). Consequently, it is important to better understand how and under what circumstances class-size reduction makes a significant difference in student achievement.

Class-Size Reduction theories have generally fallen into two categories, focusing either on the teacher or the student (Biddle and Berliner, 2002). Teacher-related theorists suggest that smaller classes have the capacity to support improved interactions between the teacher and individual students. It is argued that on a one-to-one basis, teachers are more likely to successfully assist students in adjusting to school culture (which can be more challenging for ethnic minorities and the impoverished), and teachers have higher morale (which enables them to create and maintain a supportive learning environment). Furthermore, these theorists assert the notion that the student's capacity to learn more and develop better educational attitudes are greater when the student is exposed to enthusiastic, highly trained teachers, appropriately engaging curriculums, and physical environments that support positive, successful learning experiences (Biddle and Berliner, 2002). Additionally, instructional delivery strategies that allow teachers in reduced class settings to offer material in new and challenging ways are among the important factors that impact student academic achievement; (Odden & Picus, 2002).

Theorists who focus on the learning environment and student conduct constitute the second primary group of CSR researchers. They argue that classroom management problems are reduced in smaller classes, allowing more time for instruction and greater student participation, producing less teacher stress and greater support for student learning. Additionally, student-focused analysis suggests that smaller classes provide the opportunity for less competitive and a more

cooperative student relations (Biddle and Berliner, 2002; Hallabach, Ehrle, Zahorik, & Molnar, 2001). The bridge between teacher-focused and student or environmental-focused research offers holistic insights into what supports the efficacy of Class-Size Reduction programs because teacher and student factors mediate the effects of Class-Size Reduction just as they mediate the effects of the more traditional educational resources (Cohen, Raudenbush, & Ball, 2000).

There is little argument among Class-Size Reduction researchers that teachers who are knowledgeable about teaching and learning, and whose educational environments afford them regular opportunities to know their students well are critical to successful learning experiences and outcomes. However, the availability of high-quality professional development is often scarce in poorly funded and low performing educational systems (National Black Caucus of State Legislators, 2001; Odden & Picus, 2002). Nonetheless, research indicates that a commitment to teacher training and expertise may have a bigger payoff per dollar spent, and in reduced class-size settings, professional development can help maximize teacher skill, making the training investment an important complement to class-size reduction programs, especially for new, first-year teachers (Odden & Picus, 2002).

### **Program Personnel**

To facilitate the implementation of the Class-Size Reduction program, the Title VI Supervisor in the External Funding Department collaborated with the CSR Trainer III, the CSR administrative district office representatives, and the Department of Research and Accountability to implement the grant and to assess the implementation of the grant in the eligible HISD elementary schools. The CSR Secretary I provided administrative assistance to the Title VI Supervisor.

The Title VI Supervisor's responsibilities for the Class-Size Reduction program grant included the following: supervise the CSR Secretary I; manage the CSR budget; complete the annual application for state/federal funding; coordinate with the Class-Size Reduction CSR Trainer III for the provision of CSR professional development; coordinate with the Budgeting Department to set up campus budgets for CSR services; coordinate with district superintendents and participating CSR campuses for dissemination of guidelines and policies to reflect the intent of the grant; monitor the proper expenditure of grant funds by participants; coordinate with district personnel to en-

sure proper staffing and certification of CSR teachers; coordinate with the Bilingual Department with respect to proper credentials for Bilingual/ESL CSR teachers; draft/revise criteria for staffing; develop a policy handbook; monitor maintenance of proper CSR student enrollment; manage and coordinate with the Department of Research and Accountability for proper program evaluation to meet state criteria.

The CSR Trainer III served as a liaison between the Reading Department, Title VI Supervisor-External Funding, CSR representatives from the various administrative district offices, CSR teachers, professional trainers and consultants, and the Department of Research and Accountability to ensure the provision of professional development training opportunities that supported the required goals and objectives of the program. The CSR Trainer III extended training opportunities to approved private nonprofit schools within the Houston Independent School District boundaries. The schools were invited to attend the training sessions provided by the grant. The CSR Trainer III ordered materials to support the instruction in the classroom.

**Program Participants**

Informal interviews with program personnel indicated that there were 190 full-time teachers responsible for classroom instruction involving 162 elementary schools across the 13 administrative districts in HISD. However, one CSR teacher position remained vacant. One hundred percent of the Class-Size Reduction teachers were certified in the state of Texas and possessed at least a bachelor’s degree from an accredited college or university. Campus administrators were directed by the Title VI Supervisor, External Funding Department to select Class-Size Reduction teachers whose sole responsibility would be to provide CSR classroom instruction.

Consistent with the design of the Class-Size Reduction program, kindergarten, first, second, and third grade students were selected to participate according to criteria established at the school level. Based on student rosters submitted by 97% of the program teachers from 99% of the schools, 3,194 kindergarten through third grade students participated in the program during the 2001–2002 academic year. Approximately 89% (2,830) of the CSR students were first-year participants, 7% (225) were second-year participants, and less than 1% (12) were third-year participants. Data were not submitted for about 4% (127) of the students.

The demographic characteristics of the 3,194 student participants are summarized in **Table 1**. The data indicates that the highest enrollment occurred in the first grade (47.1%). Further, **Table 1** shows that the two largest ethnic groups were Hispanic (52.6%) and African American (40.8%). When examining gender, a higher percentage of males comprised the program than females (57% versus 43%, respectively).

Student demographics were also reported by group affiliation: Limited English Proficient (LEP), Bilingual, English as a Second Language (ESL), Special Education, Gifted and Talented (G/T), and Economically Disadvantaged. The percentage of students classified as LEP was 31.9%. Approximately twenty-one percent of the students were enrolled in the bilingual program. Only 5.6% of the students were characterized as ESL, however, 22.4% of the participants were identified as Bilingual. Special Education students comprised 6.5% of the program. Less than one percent (.3%) of the Class-Size Reduction participants were classified as Gifted and Talented. When further examining group affiliation, the majority of students were economically disadvantaged (86.3%). Thus, a profile representative of the typical participant in the Class-Size Reduction program was an economically disadvantaged Hispanic male in the first-grade.

Table 1: Demographic Distribution of Class-Size Reduction Students, 2001–2002

	<u>N</u>	<u>%</u>
<b><u>Grade</u></b>		
Kindergarten	151	4.7
First	1,504	47.1
Second	750	23.5
Third	789	24.7
<b><u>Gender</u></b>		
Male	1,820	57
Female	1,374	43
<b><u>Ethnicity</u></b>		
African Am	1,304	40.8
Hispanic	1,679	52.6
White	175	5.5
Asian	36	1.1
<b><u>Group</u></b>		
Free/Reduced Lunch	2,757	86.3
Special Ed	209	6.5
Bilingual	717	22.4
ESL	178	5.6
LEP	1,019	31.9
G/T	11	0.3
<b>Total</b>	<b>3,194</b>	

## Budget

The tentative Class-Size Reduction entitlement to the Houston Independent School District for the 2001–2002 school year was \$9,171,626, according to funding information submitted by the External Funding Department and as reflected on the HISD Board of Education agenda item (**Appendix B**). Additionally, roll-forward funding from the previous school year of \$1,875, resulted in a total budget of \$11,046,626 for the 2001–2002 school year, as indicated by the Title VI Supervisor. Consistent with the 2001–2002 guidelines set forth by the Texas Education Agency, the Board designated seventy-two percent of the funds for hiring and training an estimated 177 new teachers. Twenty-five percent of the funds was appropriated for professional development of CSR teachers, and three percent was designated to cover local administrative costs (Texas Education Agency, 2001.) Actual budget expenditures reflected that approximately sixty-nine percent (\$7,612,450) of the total budget was utilized for paying first-year salaries for 190 CSR teachers. Twelve percent of the total funds (\$1,284,027) was expended for professional development for CSR teachers, and approximately three percent (\$275,149) was spent on local administrative costs, as indicated in the Class-Size Reduction 2001–2002 Implementation Report, submitted by the External Funding Department to WESTAT. The CSR Coordinator and the CSR Secretary I positions were funded by the grant.

## Purpose of the Evaluation Report

The purpose of this evaluation was to describe the implementation of the Class-Size Reduction program in relation to the stated goals and to determine its effectiveness in improving student achievement for the students enrolled in the program and the students whose classes were reduced by students placed in Class-Size Reduction classrooms. The following research questions were posed:

1. How was the Class-Size Reduction program implemented across the district?
2. What was the rate of attendance and rate of effectiveness of the Class-Size Reduction professional development teacher training?
3. What was the academic performance of students participating in the program?
4. What was the academic performance of students in the regular classrooms?

5. What were the teachers' perceptions of the Class-Size Reduction program?
6. What program strengths and weaknesses were articulated by the teachers?

## Methods

### Data Collection

To ascertain how the program was implemented, several strategies were incorporated. Information pertaining to the history and goals of the program was collected during informal interviews, meetings with program personnel, and a review of literature. Budget, campus, and teachers background information was obtained through External Funding and matched with the Principal Questionnaire (**Appendix C**) and the Class-Size Reduction Student Roster Template.

Demographic and social data on students were collected from the Public Education Information Management System (PEIMS) and the Schools Administrative Student Information (SASI) System by programming staff. Participating students were identified by CSR teachers on the Class-Size Reduction Student Roster Template and matched with the Schools Administrative Student Information (SASI) System by programming staff.

The professional years of teaching experience and type of certification for Class-Size Reduction teachers was obtained from the Public Education Information Management System (PEIMS) Teacher File. Teacher Survey data were used in conjunction with the PEIMS database to assess educational programs. The Principal Questionnaire and data provided by the Title VI External Funding Office were analyzed to determine the number of Bilingual and ESL certified teachers. CSR classroom model information was collected from the Principal Questionnaire and the Class-Size Reduction Student Roster Template.

Data pertaining to student selection criteria and total time spent in the CSR classroom daily were obtained from the Class-Size Reduction Student Roster Template. Actual and mean class size data were obtained from the Class-Size Reduction Student Roster Template, the Public Education Information Management System (PEIMS) Teacher File, and the Schools Administrative Student Information (SASI) System by programming staff. Classroom model, subjects taught, and facilities data were collected from the Principal Questionnaire (**Appendix C**) and the

Teacher Survey (**Appendix D**), respectively. Additionally, CSR content area information was analyzed from Teacher Surveys.

To further determine the level of implementation of the Class-Size Reduction program across the district, twenty-one campuses were selected for observation. The criteria for selection was based upon several factors including the classroom Class-Size Reduction model, geographic location, demographic characteristics of the campus, and those campuses that were not observed in the 2000–2001 program evaluation. The Class-Size Reduction Observation Categories instrument (**Appendix E**) was previously adapted from an instrument utilized by Molnar, Smith, & Zahorik (1998). The Teacher Observation Checklist (Appendix E) was previously designed by synthesizing information from Molnar, Smith, & Zahorik (1998), and provided insight about the physical classroom environment, instructional materials and supplies, and the number of campus personnel involved in classroom instruction.

To fully describe the professional development opportunities, the CSR Trainer III provided descriptions of the training sessions. To determine the level of professional development participation for the Class-Size Reduction teachers, sign-in sheets were compiled by the CSR Trainer III and the results were provided for this evaluation. In addition, Teacher Survey data were used to assess teachers' views of the effectiveness of the Class-Size Reduction professional development opportunities.

The Student Roster Template was e-mailed to participating school principals to track CSR students and teachers. Program staff at the schools were required to complete the templates and return them by e-mail to the Department of Research and Accountability. Data submitted on the template identified the school, teacher, model, students, existed and transferred students, student grade level and years in program, total daily time student spent in CSR, subjects taught to each student. In addition, information to identify the reduced, regular classroom teachers was included. The submitted Student Roster Templates were compiled into a database of participants. A total of 184 rosters out of 189 rosters (97%) were returned and included for the present study. The Student Rosters represented 160 of the 162 (99%) participating campuses. If discrepancies existed between the school-level data and district-level data including PEIMS, Stanford, or Aprenda databases, decisions were made by programming staff and the program

evaluator on a case-by-case basis to ensure the greatest accuracy.

Academic achievement was measured using the Stanford 9, Aprenda 1 or Aprenda 2 reading and mathematics subtests scores. Student identification numbers from the Class-Size Reduction Student Roster Template were matched to the Stanford 9 and Aprenda data files by programming staff. Additionally, the Stanford 9 and Aprenda reading and mathematics achievement for regular classroom students at the same grade levels were analyzed.

### Survey Data

A CSR Principal Questionnaire (Appendix C) was distributed to all participating campus administrators (n=162). A total of 154 principal surveys were returned, reflecting a response rate of 96%. The Principal Questionnaire items were developed by examining accountability guidelines. Multiple choice and fill in the blank responses were requested. Survey items focused on program implementation, including CSR class size, class model, subjects taught, regular classroom teachers, Class-Size Reduction teachers and students.

To further ascertain details on program implementation, teacher perceptions of various aspects of the Class-Size Reduction program were measured by the CSR Teacher Survey (Appendix D). The Teacher Survey was distributed to all active CSR teachers (n=189), and a total of 151 surveys were returned, reflecting a response rate of 80%. Responses were anonymous and items were developed from a previous instrument (Molnar, Smith, & Zahorik, 1998). Additional items were created from program goals, objectives, and TEA accountability requirements. A Likert scale was used to rate the degree to which teachers agreed or disagreed with statements about teaching CSR classes, this year. Survey questions included items to assess the educational program of students, subjects taught, and educational facilities. In addition, a series of open-ended questions was used to determine program strengths, weaknesses, and recommendations for improvement. Furthermore, Teacher Survey items addressed the efficacy of the professional development training.

### Data Analysis

Survey data for teachers and principals were analyzed using descriptive statistics. Program selection criteria responses from the Principal Questionnaire

and open-ended responses from the Teacher Survey were categorized according to emergent categories. Findings from the Class-Size Reduction Observation Categories and the Teacher Observation Checklist were summarized using categories to indicate the presence or absence of the identified criteria.

Two sets of Stanford 9 and Aprenda data were collected and analyzed for this evaluation. Student academic performance was measured by analyzing normal curve equivalent (NCE) scores from the Stanford 9 and Aprenda reading and math subtests for 2000–2001 and 2001–2002. For each grade level, mean NCE scores from the Stanford 9 and Aprenda were compared using a paired *t*-test. To be included, both 2000–2001 and 2001–2002 scores were required for each student. In addition, data were collected to determine students performing below grade level and those performing at or above grade level. Specifically, the percentage of students that performed below grade level, and the percentage of students performing at or above grade level for the Spring 2002 Stanford 9 and Aprenda test administrations were reported for both reading and mathematics. The 2001 data reflect Stanford 9 results using 1995 norms and Aprenda 2 using 1996 norms while the 2002 data reflect Stanford 9 results using 2000 norms and Aprenda 1 using 2001 norms, therefore, comparative statements are made with great caution.

Actual class size information was obtained from the Class-Size Reduction Student Roster Template, the Public Education Information Management System (PEIMS) Teacher File, and the Schools Administrative Student Information (SASI) System. To calculate actual class sizes prior to implementation, CSR Student Rosters were used to calculate the number of students removed from regular classrooms and placed into CSR classes. The number of CSR placements were then added to the number of students that remained in the regular classrooms, as extracted from the PEIMS, and the SASI System by programming staff. The number of students that remained in the regular classrooms, as extracted from the PEIMS and the SASI System by programming staff, was used to determine the actual, regular class sizes after Class-Size Reduction implementation. The Class-Size Reduction Student Rosters were used to calculate actual Class-Size Reduction class sizes.

Based on the results from the Principal Questionnaire and other information obtained from participating campuses, the Title VI Supervisor identified nine

schools that did not implement the Class-Size Reduction program according to the intent of the program grant as delineated by the Texas Education Agency, Division of Student Support Programs 2001–2002 Program Guide for Class-Size Reduction Program Title VI Public Law 106–554 (Texas Education Agency, 2001). The Department of Research and Accountability program evaluator notified the Grant Supervisor that the nine non-compliant campuses were not included in the student achievement analyses in this report, omitting approximately 170 students. One CSR teacher's position remained vacant and four additional CSR teachers did not submit electronic rosters including 1 teacher on medical leave. Further, 11 students listed on the CSR rosters were eliminated from the analysis because no district identification number was submitted for 5 students and 6 students were not identified as K–3 students in accordance with guidelines set forth by the Title VI Supervisor. Insufficient or duplicate information was submitted on another 101 students who were therefore, excluded from the analysis.

Internal validity refers to how accurately the design strategy will provide answers to the evaluation questions. External validity refers to whether the evaluation findings will hold true for other people in other places (Fink and Kosecof, 1978). One potential internal validity factor was regression toward the mean due to the majority of students being selected for program participation as a result of their low achievement scores. A second internal validity factor involved multiple program interference. The participants may have been exposed to different instructional intervention strategies, particularly for reading. Therefore, in addition to being placed in a smaller classroom environment, different reading interventions may have been employed depending on the school or the teacher. Given this possible variance and its potential effect on program implementation, observed changes in behavior or performance may have been, at least in part, the product of a combination of educational programs (Fink & Kosecof, 1978).

## Results

### How was the Class-Size Reduction program implemented across the district?

A districtwide effort to uniformly implement and assess the 2001–2002 Class-Size Reduction program was supported from Central Administration and district

administrative offices to campus administration and CSR teachers. The primary areas addressed included adherence to an approved classroom model for grades K–3, assignment of full-time CSR teachers with only CSR responsibilities, maintenance of an 18-student limit per CSR teacher for a minimum of 90 instructional minutes per student daily, and instruction to cover content areas necessary for each student to obtain a well-rounded academic program. In previous years, reading instruction was the primary program focus.

To evaluate how the Class-Size Reduction program was implemented across the District, information from the Principal Questionnaire, Teacher Survey, and student rosters was utilized. Further, classrooms on twenty-one campuses were observed to assess program implementation. The implementation of the program was complex, because many different campus conditions impacted the participants. Seven areas were addressed: number of students served by grade levels, selection criteria, class-size reduction models, facilities, content areas, daily time frame, class sizes, teaching staff certification, educational programs, and number of years of professional teaching.

**Number of Students and Grades Served**

The Title VI Supervisor directed campus personnel to identify K–3 students for participation, and preferably to implement the program at one grade level. To determine the number and grade level of students participating in the program, CSR teachers were asked to submit an electronic roster of their students. **Figure 1** summarizes the number of CSR program participants by grade level. The results reflect students for which demographic information was available. The total number of identified participants was 3,194. By far, the highest enrollment of 47.1% occurred in first grade (n=1,504), and the lowest enrollments of 4.7% occurred at kindergarten (n=151). Student enrollment was closest at grade levels two and three with 750 (23.5%) and 789 (24.7%) students, respectively.

**Selection Criteria**

Students were selected to participate in the program based upon criteria established at the campus level. Interviews with Class-Size Reduction teachers and other program staff revealed that selections were primarily based on the size of the regular class, random selection, and low academic performance - especially in reading.

Data sufficient to assess the selection criteria for

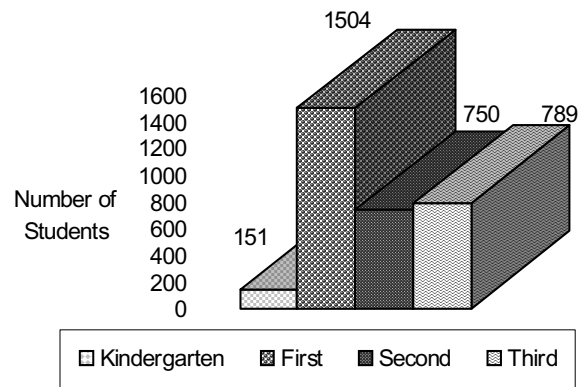


Figure 1: Number of CSR Students by Grade Level, 2001–2002.

3,109 students (97.3%) were submitted. **Figure 2** depicts the three categories that emerged as the primary criteria used to identify students for program participation. Seventy-three percent (2,268 students) were chosen based on being identified as low performing students. Eighteen percent (551 students) were chosen based on the size of the regular class to which they would have been assigned, and seven percent (234 students) were chosen randomly. Further, about two percent (56 students) were selected due to their LEP status or for behavioral reasons.

**Class-Size Reduction Models**

To address the different needs of participating campuses (n=162), three Class-Size Reduction models were implemented by CSR teachers across the District. Based on student rosters, sufficient data was submitted for 99% (3,165) of the students. **Figure 3** depicts the percentage of students for each CSR

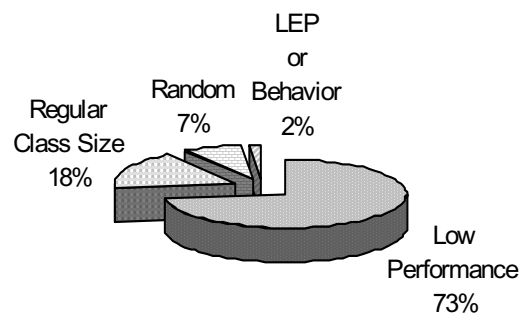


Figure 2: Percentage of CSR Students by Program Selection Criteria, 2001–2002.

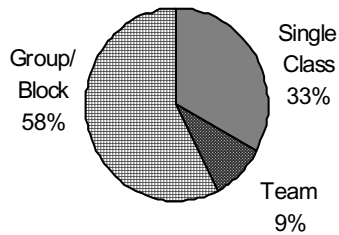


Figure 3: Percent of Students by Class-Size Reduction Model, 2001–2002.

instructional model: Single Class model 33% (n=1,048), Team Teaching 9% (n=297), and Small Group/Block Schedule 58% (n=1,820). The Single Class model is one in which the teacher provided instruction in all subjects to 18 or fewer students in a single classroom setting. The Team Teaching model is one in which the Class-Size Reduction teacher teams with the regular classroom teacher to provide direct/small group instruction and assessment. The Small Group Instruction Model is one in which the Class-Size Reduction teacher provided daily instruction in reading for a 90 minute block of time in addition to other core subjects. A maximum of 18 students were to be assigned to each CSR teacher, regardless of the classroom model implemented. Although three discrete models were identified, a continuum existed with regard to the implementation of CSR classroom models in some cases. For example, there were at least eight teachers that indicated team teaching was done in a small group/block schedule format and three indicated Team Teaching was done in a single class. For classification purposes, these classrooms were categorized based on the context within which the team teaching took place, Single or Small Group.

**Content Areas**

The Principal Questionnaire was sent to participating schools, and principals were asked which subjects were taught by the Class-Size Reduction teachers. **Table 2** summarizes the number and percent for each subject area for the 2000–2001 and 2001–2002 school years. Most schools offered more than one subject area. Teachers implementing the Single Class model were expected to instruct students in all subject areas. Additionally, other CSR teachers were directed to

Table 2: Comparison of the Number and Percent of Content Areas Offered to the Class-Size Reduction Students, 2001–2002

Content Area	2000–2001		2001–2002	
	N	%	N	%
Language Arts	57	46	122	79
Reading	116	94	147	95
Mathematics	32	26	119	77
Social Studies	27	22	93	60
Science	25	20	87	56
<b>Other:</b>	7			17
Spelling/				
Handwriting	6	4	4	3
ESL	1	<1	17	11
Fine Arts	-	-	2	1
Health/Phys. Ed.	-	-	2	1
“other”	-	-	1	<1

provide instruction in targeted areas such as reading and mathematics, as well as provide instruction in any content area that may be covered by the regular classroom teacher, while the CSR student participated in the reduce class setting. The largest portion of the participating schools offered reading (95%) followed by language arts (79), math (77%), social studies (60%), science (56%), and ESL (11%). Comparing 2000–2001 and 2001–2002, the percentage of campuses offering language arts, reading, mathematics, social studies, and science increased across subjects (33%, 1%, 51%, 38%, and 36%, respectively). Other subjects offered included spelling and/or handwriting (3%), ESL (11%), fine arts (1%), and health/physical education (1%). One respondent (<1%) did not indicate the type of “other” subject offered.

**Daily Time Frame**

Program personnel from the participating schools submitted student rosters to report a variety of classroom information including the total number of minutes students received instruction in a reduced classroom environment on a daily basis. Sufficient information was submitted on 95% or 3,047 of the participating students. The amount of CSR classroom time that students were exposed to ranged from 30 minutes to a full day of instruction which totaled approximately 420 minutes. **Table 3** reveals that the largest proportion of students, 1,491 (49%), were exposed to a total of 90–110 minutes in a CSR classroom. Another 1,122 (37%) of the students participated in a CSR setting for the entire school day, while an additional 74 (3%) of the

Table 3: Number and Percent of CSR Students by Total Daily Time in Program, 2001–2002

Time Daily	N	%
All Day	1122	37
290 – 220 Minutes	74	3
195 – 120 Minutes	226	7
110 - 90 Minutes	1491	49
30 to 60 minutes	134	4
<b>Total</b>	<b>3047</b>	<b>100</b>

program students were involved in a CSR class for approximately 220–290 minutes or roughly two-thirds of the school day. Of the remaining 360 (11%) of the students, 226 (7%) were exposed to a CSR classroom from 120 to 195 minutes per day and 134 (4%) were instructed in a CSR classroom for only 30 to sixty minutes daily. The Class model was the biggest determinant of total CSR class time. Single Class participants were able to utilize the CSR environment for the duration of the day. However, for the remaining students, the amount of time spent in a reduced class setting varied from one CSR class to another as well as across participating campuses. Informal interviews with program staff indicated that a primary factor affecting student time spent in the CSR setting was scheduling restraints.

**Class sizes Before and After Reduction**

Mean class sizes before and after program implementation for classes directly affected by program implementation were analyzed. To be included in the analysis, complete data for the CSR student and the regular classroom teacher were needed. **Table 4** summarizes the mean class sizes for the regular classrooms that were reduced by the CSR program, before and after implementation, along with the average number of students that classes were reduced. The mean class size before CSR was largest at the

Table 4: Mean Class-Sizes and Class-Size Reductions by Grade Level for Classes Reduced by CSR Program, 2001–2002

Grade	Mean Before CSR	Mean Before CSR	Mean Class Reduction
KG	18	15	7
1	22	17	5
2	18	15	4
3	19	15	6

first grade with 22 students, 19 students at third grade, and 18 students at kindergarten and second grade. Following CSR implementation, only the first grade maintained a mean number of students over 15 with 17 students. The largest reductions occurred at kindergarten and the third grade, 7 and 6 students, respectively. The first and second grades followed with mean reductions of 5 and 4 students, respectively. Actual CSR class size ranged from 5 to 33 students. Seven classes (4%) had 5 to 9 students, 60 classes (33%) had 10 to 15 students, 109 classes (59%) had 16 to 18 students, 6 classes (3%) had 19 students, 1 class (<1%) had 24 students, and 1 class (<1%) had 33 students.

**Facilities**

To gain information regarding instructional facilities, participating CSR teachers responded to a survey question. **Table 5** summarizes the responses (n=151). On some campuses, instruction took place in more than one area. The majority of respondents indicated that instruction took place in a classroom setting (64.0%) or a shared-space classroom (23%). Other instructional facilities utilized included temporary buildings (12%), converted space (8%), stage (4%), hallways (3%), cafeterias (2%), and a church (0.7%). Other (unspecified locations) were utilized by 9% of the teachers.

**Number of Teachers and Educational Program**

A total of 189 full-time teachers was hired to provide instruction to participating students. To determine the educational program of students and the number of professional years teaching. **Table 6** summarizes the number and percentage of teachers by educational program. Approximately 30% of the

Table 5: Number and Percent of Facilities Utilized by the Class-Size Reduction Program for the 2001–2002

Facilities	N	%
Classroom	96	64
Shared Space Classroom	35	23
Temporary Building	18	12
Other (unspecified)	14	9
Converted Space	12	8
Stage	6	4
Hallway	4	3
Cafeteria	3	2
Church	1	0.7

Table 6: Number and Percent of CSR Teachers by Educational Program, 2001–2002

<u>Program</u>	<u>N</u>	<u>%</u>
Regular	128	74
Bilingual	41	24
ESL	25	15
Special Ed. Compensatory Ed/ Remedial	21 11	12 6

teachers reported more than one program. Teachers of regular students (nearly two-thirds) and bilingual students (about one-third) represent the two largest program categories. However, teachers of bilingual students grouped with teachers of ESL students amounted to 39% of the teachers. Teachers of special and compensatory education students represented the smallest groups of teachers, totalling less than 20% combined. To supplement the findings presented in Table 6, the Principal Questionnaire and data reported by the Title VI External Funding Office indicated that 55 (29%) of the 190 CSR teachers were Bilingual or ESL certified.

The number of professional years for Class-Size Reduction teachers ranged from a minimum of 0 to a maximum of 42. The mean number of years teaching was 13 years. More specifically, the most frequently occurring value reflecting the number of professional years of teaching experience was six. **Table 7** summarizes the number of professional years of teaching experience for 172 CSR teachers. Table 7 indicates that the majority of teachers taught 11 or more years (89%) while the smallest group of teachers (15%) taught professionally from 3–5 years.

### Classroom Observations

Classroom observations in twenty-one participating schools were scheduled during the months of March 2002 and April 2002. The demographics of the selected campuses are listed in **Appendix F**. The criteria for selection was based upon several factors including the campus Class-Size Reduction model, geographic location, demographic characteristics of the campus, and the campuses that were not observed in the previous 2000–2001 program evaluation. The schools observed represent the 13 HISD administrative districts. One class was partially observed. The classroom facility was observed, however, the classroom interaction was not analyzed due to an unrecep-

Table 7: Number and Percent of CSR Teachers by Professional Years Teaching, 2001–2002

<u>Professional Years</u>	<u>Number</u>	<u>Percent</u>
Less than 3	31	18
3 – 5	15	9
6 – 10	37	21
11 or more	89	52
<b>Total Teachers</b>	<b>172</b>	<b>100</b>

tive response to the observer. Teachers were observed in the classroom setting for one 30-minute period to determine the instructional strategies employed. More specifically, the degree of individualization, engagement, and management were assessed on a presence/absence basis. **Table 8** reports the observed classroom behavior for the models employed based on: Single Classroom, Team Teaching, and Small Group Instruction. Interpretations about differences by classroom model are speculative given the relatively small number of teachers observed in each type of classroom.

### Individualization

Individualization in the classroom is reflected by forms of individualized activity with students working on their own or in groups on selected or assigned tasks. Students are monitored, helped, or actively participate in a group discussion by expressing their views. Table 8 reveals that teachers offered help to students in 100% of the observed classrooms, regardless of the model. Additionally, teachers offered whole class instruction in 95% of the classrooms, with the Single the class model presenting the activity in the lowest percentage of cases at 86% versus 100% of the Team and Small group classes. All students were engaged in classroom discussion in 86% of the observed classes, overall. Specifically, this occurred in 100% of the Team and Small group classes and in 57% of the Single model classrooms. Further, students were monitored for progress in 81% of the classrooms, considering all models. This included 90% of the Small Group, 86% of the Single model classrooms, and 67% in the Team Teaching classes. Regardless of model, peer tutoring (27%), student grouping (21%), and student choice in selecting learning activities (3%) occurred in a smaller percentage of classrooms than the other observed activities. However, peer tutoring occurred in 33% of the Team Teaching classrooms,

Table 8: Percentage of Observed Classroom Behaviors by Class-Size Reduction Classroom Model, 2001–2002

	Small Group/ Block Schedule			
	All Models	Single Class	Team Teaching	Block Schedule
	N=20 %	N=7 %	N=3 %	N=10 %
<b>Individualization</b>				
Monitoring	81	86	67	90
Grouping	21	43	0	20
Choice	2	0	0	10
Help	100	100	100	100
Whole Class	95	86	100	100
Peer Tutoring	27	29	33	20
All Children	86	57	100	100
<b>Engagement</b>				
Listening	100	100	100	100
Practicing	81	86	67	90
Responding	100	100	100	100
Gaming	26	29	0	50
Manipulating	45	29	67	40
Creating	16	29	0	20
Dialoguing	70	43	67	100
Problem Solving	87	71	100	90
Reporting	27	29	33	20
Reflecting	89	100	67	100
Initiating	95	86	100	100
<b>Management</b>				
Praise	82	100	67	80
Reproof	32	14	33	50
Remind	56	71	67	30
Warms	41	57	67	0
Cools	0	0	0	0
Peer	18	43	0	10
Permits	52	57	0	100

student grouping occurred in 43% of the Single model classrooms, and student choice of activity occurred only in 10% of the Small Group classes during observations.

### Engagement

Engagement consists of instructional activities that are more teacher-centered than student-centered. For example, students listen to directions, explanations, demonstrations, and other activities controlled by the teacher. In addition, students respond orally or mentally to teacher questions, follow teacher directions to complete seat work, recite in unison, or read aloud. **Table 8** shows that considering all models, listening (100%), responding (100%), initiating (95%), reflecting (89%), and problem solving (87%) occurred in most classrooms. Specifically, listening and responding were behaviors that were observed in 100% of the classrooms across models. However, initiating and reflecting occurred in 86% and 71% of the Single

classrooms, respectively. Furthermore, practicing skills (81%), manipulating tools and objects (45%), and dialoguing (70%) were observed across models. More specifically, practicing skills was observed in a higher percentage of Small Group classes (90%), manipulating objects was observed in more Team Teaching classrooms (67%), and dialoguing was observed in more Small Group classes. Additionally, regardless of classroom model, reporting or sharing accomplishments (27%), educational games (26%), and creating stories, etc. (16%) occurred in fewer classrooms. Specifically, reporting or sharing accomplishments was observed more in the Team Teaching classes (33%), educational gaming were observed more in the Small Group classes (50%), and creating stories, etc. was observed more in the Single Class model classrooms (29%).

### Management

Positive management refers to the teacher offering

comments of praise, reminding students of rules and appropriate behaviors, and warms or personalizing learning concepts. Table 8 shows, regardless of model, comments of praise (85%), reminding students of desired rules and behaviors (56%), and personalization (41%) were observed. With respect to specific models, praise was observed in 100% of the Single Class and in 80% of the Small Group classrooms. Reminding students was observed in more of the Single (71%) and the Team Teaching (67%) classrooms. Personalizing learning concepts was observed more in Team Teaching classes (67%). Negative management comments of reproof and cools involving teacher turning-off student learning by making cutting comments, sarcastic remarks, etc. were comparatively low, overall, 32% and 0%, respectively. Teachers who permitted students to make choices regarding behavior (52%) varied a great deal across models including Small Group (100%), Single (57%), and Team Teaching (0%). Further, teachers who allowed students to solve problems among their peers was observed in 18% of the classrooms overall, including 43% of Single, 10% of Group, and none of the Team Teaching classrooms.

### **Educational Setting and Events**

The educational setting, equipment, educational resources, classroom atmosphere, and student engagement were systematically assessed for the 21 observed campuses to determine the level of program implementation. During the 30-minute observation period, the Class-Size Reduction Observation Categories instrument and the Teacher Observation Checklist (Appendix E) were utilized. Attention was paid to instructional facilities (i.e. classroom, hallway, cafeteria, stage, etc.), the number of students instructed, classroom equipment (computers, desks, tables, chairs, rugs, and blackboard) educational materials (posters, student work displayed, magazines, classroom library, reference data, learning centers, books, and visual displays), classroom arrangement (ordered or disordered contents), utilization of space (spacious or cluttered), the presence or absence of sufficient materials for the learning activities observed, classroom atmosphere (positive or negative rapport between teacher and students), and the degree students were engaged with the learning activities.

For the number of students, classes having 18 or fewer students were rated as high. Classes exceeding the 18 student limit were rated low. For facilities,

classes having self-contained classrooms in permanent or temporary buildings were rated high. Shared, converted, or multipurpose facilities were rated low. Concerning equipment and educational materials, classes that possessed all the identified resources, most of the identified resources, or few of the identified resources were rated high, moderate and low, respectively. With respect to classroom arrangement, utilization of space, sufficient materials, and atmosphere the classes were classified as high, medium or low to represent positive, moderate, or negative factors, respectively. For students engaged, the classrooms having all students engaged during the observation period received a high rating, most students engaged for most of the time received a moderate rating, and lower levels of engagement received a low rating. The percentage of classes rating high, moderate, or low for the observed educational factors was calculated by classroom model. **Table 9** summarizes the percentage of classrooms at the various levels of implementation according to nine observation categories, grouped by the Class-Size Reduction Models. Specifically, 80% to 100% of the Single model classrooms rated high in four categories, 71% to 86% rated high in four categories, and 57% rated high in student engagement, the remaining category. Further, 75% to 100% of the Team Teaching classrooms rated high in all but one category, classroom facilities, with 50% rating high in that category. In addition, 80% to 100% of the Small Group classrooms rated high in five categories and 20% to 40% rated high in the remaining four categories. However, the Small Group classrooms received more low ratings. Nonetheless, 100% of the Small Group classrooms rated high in four categories including the number of students, sufficient materials, atmosphere, and student engagement.

### **What types of professional development opportunities have Class-Size Reduction teachers received?**

This section describes some of the 26 areas of professional development opportunities that were available to the Class-Size Reduction teachers during the 2001–2002 school year. Professional development opportunities focused on research-based reading intervention strategies, language arts, student assessment, mathematics, and classroom management. The training received and the number of participants served are summarized in **Table 10**. Sessions that were designed for teachers new to HISD, experienced teach-

Table 9: Level of Implementation Based On Classroom Observation Category by Model

	Implementation Level								
	Single Class			Team Teaching			Small Group		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
Number of Students	14	-	86	-	-	100	-	-	100
Classroom Facilities	-	-	100	50	-	50	60	10	30
Equipment	-	29	71	-	25	75	20	60	20
Educational Materials	-	29	71	-	25	75	-	60	40
Classroom Arrangement	14	-	86	25	-	75	20	-	80
Utilization of Space	-	-	100	25	-	75	50	10	40
Sufficient Materials	-	-	100	-	-	100	-	-	100
Atmosphere	-	29	71	-	25	75	-	-	100
Student Engagement	-	43	57	-	-	100	-	-	100

ers new to the CSR program, and experienced CSR teachers who did not attend the training last year are marked with an asterisk (\*).

*Proactive Beginning Reading Training*

The CSR teachers were offered five full days of reading intervention training, which correlated with the SRA/Open Court reading basal. Each participant received teaching sets of books G (to compliment sets A – F received last year), a Teacher’s Edition, and eighteen student’s booklets to work with students in small group instruction centers. Teachers also received Step by Step student take-home stories, classroom sets of phonic readers, decodable mini-books (6 each of 18 titles), one hand puppet, and one set of Open Court sound/spelling cards. There were 350 total participants attending the Proactive Beginning Reading Training; 51% of the participants attended days one and two, 40% attended days three and four, and 9% attended day five. Days 1 and 2 and Days 3 and 4 were the two highest-attended workshops.

*Phono-Graphix Training*

Phono-Graphix training represented a direct, systematic approach for teaching reading and spelling that addressed the concepts, skills, and information needed to be a successful reader and speller. The theoretical underpinnings of Phono-Graphix are straightforward and sensible, encouraging its rapid spread and popularity among teachers. It is based upon the nature of the English code; the three skills needed to access that code and teaching the skills in keeping with the way children learn. Each participant received one copy of Reading Reflex to supplement the training process, one large magnetic white board, a set of giant capital

and a set of giant lower case magnetic alphabets, and five sets of Reading Reflex manipulative cardstock

Table 10: Professional Development Opportunities and Number of Participants, 2001–2002

Training	Teachers
Proactive Beginning Reading (Days 1 & 2)	177
Proactive Beginning Reading (Days 3 & 4)	140
Proactive Beginning Reading (Days 5)	33
Phono-Graphix Training	27
Esperanza Training (Bilingual)	15
Books, Books, Books, and Not a Guide in Sight	59
Oral Language Development	49
Inquiry Based Learning and Genre Study	37
Reading and Writing Across the Curriculum	12
Integration of Music, Rhyme, and Patterns in Reading	44
What Does a Reading and Writing Classroom Look Like?	45
<b>Neuhaus Education Center Training:</b>	
Multi-Sensory Grammar	31
Structure of Language	48
Developing Accuracy and Fluency	52
Foundations for Language	31
Reading Comprehension	71
Diagnostic and Prescriptive Teaching	32
Written Composition	50
Scientific Spelling	41
History of the English Language	35
Advanced Reading Readiness	12
Advanced Reading Comprehension	34
Advanced Multi-Sensory Grammar	23
<b>Non-Reading Topics</b>	
“New” Teacher Preparation and Classroom Management Strategies	22
Patterning and Algebraic Reasoning Mathematics	38
Using Poetry in the Classroom with Tony Stead	60

cards. A total of 27 participants attended the training.

#### *Esperanza Training\**

The training for teachers of bilingual students provided a multi-sensory, sequential, systematic approach to students for achieving Spanish literacy. Multi-sensory games and activities are incorporated as teaching strategies. Each participant received a set of six Spanish alphabet strips, six Spanish plastic letters (lower case), six Spanish alphabetic mats and mirrors, one box of Spanish picture cards, and a binder of activities to use in the classroom, along with prepared presentation notes. The workshop was one of the least attended with a total of 15 participants.

#### *Books, Books, Books, and not a Guide in Sight*

The workshop provided strategies to help teachers learn to use kindergarten through third grade-level classroom libraries more effectively. The number of participants that attended the workshop (n=59) was the third largest, following Days 1 and 2 and Days 3 and 4 of the Proactive Beginning Reading training.

#### *Oral Language Development*

The workshop provided teachers with various strategies to use the grade-level classroom libraries and to extend oral language development in the classroom. The training served the eighth-largest group of CSR professional development participants (n=49).

#### *Inquiry Based Learning and Genre Study*

The goal of the workshop was to familiarize teachers with strategies to use higher level questions with students to improve reading comprehension. Thirty-seven teachers attended the training.

#### *Neuhaus Education Center Training Diagnostic and Prescriptive Teaching*

During this workshop for K–3 teachers, participants learned how to assess students' progress in reading and spelling on an ongoing basis, and how to adjust instruction to meet the needs of the students. Each participant received a copy of Reading Assessment and the presentation notes. A total of 32 participants attended the training.

#### *Multi-sensory Grammar\**

The workshop was designed for individuals who teach writing skills and/or the parts of speech. Parti-

cipants learned sequential steps in teaching sentence construction and paragraph writing. Teachers learned multi-sensory instructional methods for the eight parts of speech. Each participant received a set of colored foam squares and an instructional manual for the classroom. A total of 85 participants attended this training.

#### *The Structure of Language\**

The workshop for elementary, ESL, adult literacy and teachers of older students provided skills for working with students who need the preliminary reading skills of phonemic awareness, letter recognition, and oral language development. This training was the ninth-highest attended with 48 participants.

#### *Developing Accuracy and Fluency*

The workshop for elementary, ESL, and dyslexia specialists to improve the accuracy and rate of reading taught participants the importance of fluency in reading. In addition, the role of decodable text to develop fluency and a system for planning lessons to increase accuracy and fluency were presented. The sixth-largest group of participants attended this training (n=52).

#### *Foundations for Language\**

This workshop was designed for K–3 and ESL teachers, working with students who need the preliminary reading skills of phonemic awareness, letter recognition, and oral language. Each participant received a copy of Teaching Basic Language Skills, and the materials that were needed to implement the program. A total of 51 participants attended this training.

#### *Reading Comprehension\**

The workshop was designed for elementary regular and special education teachers, secondary reading teachers, certified educational therapists, and dyslexia specialists to improve decoding and reading comprehension. Twenty-five participants attended.

#### *Advanced Reading Comprehension*

This workshop focused on teachers who have previously attended Reading Comprehension training. Pre-reading and summary activities with an emphasis on precise writing were the topics. A total of 37 participants attended the training.

*Written Composition*

The workshop for elementary regular and special education teachers, secondary reading teachers, certified educational therapists, and dyslexia specialists taught the structure of various paragraphs and multi-sensor strategies to motivate and teach students how to write. Fifty participants made this the seventh-highest attended workshop, following Developing Accuracy and Fluency with fifty-two participants.

*Scientific Spelling*

The workshop was designed for spelling teachers and educational therapists. It taught instructional models for presenting the reliable spelling patterns in the English language, major spelling rules, and a multi-sensory procedure for permanently memorizing irregular words. The 22 participants received Scientific Spelling, an instructional sequence manual with reproducible worksheets for students. It was the third-lowest attended training session.

*Advanced Multi-sensory Grammar*

The workshop was designed for individuals who previously attended the Multi-sensory Grammar workshop. New activities for reviewing grammar and advanced ideas about grammar were presented to 23 participants. Participants comprised the fourth-smallest group to attend CSR training this year.

*Patterning and Algebraic Reasoning in Mathematics*

Participants were taught to recognize patterns as one of the fundamental stepping stones to logical and algebraic thinking. Teaching strategies to apply algebraic reasoning across the mathematics strands were presented to the 38 workshop attendees.

**Private Nonprofit Schools**

There was a total of 46 Title VI private nonprofit schools within the HISD Administrative District boundaries invited to participate in all of the training during the 2001–2002 school year. Thirty-eight participants from the Private Nonprofit schools attended thirteen training sessions. This represented a 68% increase over the 12 participants from private nonprofit schools last year. More specifically, the name of the training and number of participants were as follows: Inquiry Based Learning and Genre Study (n=5), Reading and Writing Across the Curriculum (n=5), Developing Fluency and Accuracy (n=4), Scientific Spelling (n=4), History of Language (n=3), Structure of Language (n=3), Integration

of Music, Rhyme and Patterns in Reading (n=3), Advanced Reading Readiness (n=3), Multi-sensory Grammar (n=2), Written Composition (n=2), Reading Comprehension (n=2), Diagnostic and Prescriptive Teaching (n=1), and Patterning and Algebraic Reasoning Mathematics (n=1).

**Home Literacy**

To promote home involvement, Class-Size Reduction student participants received a Spanish or an English Metropolitan Teaching and Learning literacy bag, containing several books, a dry-erase writing board, and a marker. A Sunshine At Home parent-child reading program and teacher guide were included.

**What was the academic performance of students participating in the program?**

Academic performance for the Class-Size Reduction program was assessed using Stanford 9 and Aprenda reading and mathematics subtests scores. Student achievement analyses for students in nine non-compliant schools identified by the Title VI Supervisor were not included, representing approximately 170 students. In addition, the 2001 data reflect Stanford 9 results using 1995 norms and Aprenda 2 using 1996 norms while the 2002 data reflect Stanford 9 results using 2000 norms and Aprenda 1 using 2001 norms, therefore, comparative statements about student academic achievement throughout this report are made with great caution. Students with scores for both years were included in the comparative analyses. **Tables 11 and 12** show the number of Class-Size Reduction students taking the Stanford 9 and Aprenda reading and mathematics subtests, the NCE scores, the change in NCE scores for the spring of 2001 and spring of 2002, and the level of significance by grade level.

First grade students showed increases on the reading and mathematics subtests and third grade students showed an increase on the mathematics subtest of the Stanford 9 for Spring 2002 (Table 11). The largest academic gains occurred at first grade with an increase of 17.91 points in mathematics and an increase of 12.09 points in reading. Third grade students showed a .07 point increase in mathematics. Scores for second grade students decreased by 8.33 points in reading and 3.99 points in mathematics. Academic gains were statistically significant at first

Table 11: Comparison of Two Years of Stanford 9 Reading and Math Mean NCE Scores for a Cohort of Class-Size Reduction Students by Grade Level, Spring 2001 and Spring 2002

Cohort	# Taking	Reading			Mathematics			
		2001 NCE	2002 NCE	NCE Change	2001 NCE	2002 NCE	NCE Change	
Grade 1	112	32.04	44.13	12.09**	113	23.62	41.54	17.91**
Grade 2	398	45.78	37.44	- 8.33**	404	40.79	36.79	- 3.99**
Grade 3	522	39.07	36.17	- 2.89**	532	40.76	40.83	.07
<b>Total</b>	1032	40.89	37.52	- 3.37**	1049	38.93	39.35	.42

\*\* Significant at  $p \leq 0.01$

grade. Further, academic decreases were significant for second and third grades.

On the Aprenda (Table 12), increases occurred at first grade on both the reading and mathematics subtests by 14.37 points and 10.03 points, respectively. Further, a small increase occurred at second grade in mathematics by .45 of a point. The largest decrease (6.41 points) occurred at grade 3 on the reading subtest, followed by grade 2 (6.20 points) in reading. Additionally, the third grade showed a decrease on the mathematics subtest, however, it and the second grade reading increase were not statistically significant. Aprenda increases at grade 1 were statistically significant on both subtests, and the reading decreases for grades 2 and 3 were statistically significant.

Table 13 and Table 14 show the number of regular classroom students in the participating schools taking the Stanford 9 and Aprenda reading and mathematics subtests, the NCE scores, the change in NCE scores from the spring of 2001 to the spring of 2002, and the level of significance based upon paired *t*-test results by grade level. First grade students showed increases on the reading and mathematics subtests and the third

grade students showed an increase on the Stanford 9 mathematics subtest for spring 2002 (Table 13). The largest gains occurred at the first grade level with an increase of 18.30 points over last year in mathematics and a 15.21 point increase in reading. Third grade student mathematics scores increased by 1.05 points. NCE scores for second grade students decreased by 8.65 points in reading and 1.94 points in mathematics while for third grade students a 1.61 point decrease occurred in reading. Academic gains were statistically significant for the first grade, and academic decreases were statistically significant for second and third grades. However, the increase in third grade mathematics (1.05) was not found to be statistically significant.

On the Aprenda (Table 14), increases occurred at first grade on both reading and mathematics subtests by 19.02 points and 15.66 points, respectively. Additionally, an increase occurred at second grade in mathematics by 2.32 points. The largest decrease (6.90 points) occurred at grade 2 in reading, followed by grade 3 (6.81 points) in mathematics and reading (6.51). All changes in scores on the Aprenda were statistically significant.

The percentage of Class-Size Reduction students

Table 12: Comparison of Two Years of Aprenda Reading and Math Mean NCE Scores for a Cohort of Class-Size Reduction Students by Grade Level, Spring 2001 and Spring 2002

Cohort	# Taking	Reading			Mathematics		
		2001 NCE	2002 NCE	NCE Change	2001 NCE	2002 NCE	NCE Change
Grade 1	31	31.81	46.19	14.37**	26.47	36.51	10.03**
Grade 2	164	53.23	47.03	-6.20**	45.73	46.18	.45
Grade 3	97	51.72	45.31	-6.41**	48.74	45.99	-2.74
<b>Total</b>	292	50.46	46.37	-4.08**	44.62	45.06	.44

\*\* Significant at  $p \leq 0.01$

Table 13: Comparison of Two Years of Stanford 9 Reading and Math Mean NCE Scores for a Cohort of Regular Classroom Students in Participating Schools by Grade Level, Spring 2001 and Spring 2002

Cohort	# Taking	Reading			Mathematics			
		2001 NCE	2002 NCE	NCE Change	2001 NCE	2002 NCE	NCE Change	
Grade 1	305	32.62	47.84	15.21**	313	26.27	44.57	18.30**
Grade 2	1159	56.23	47.57	-8.65**	1166	50.06	48.12	-1.94**
Grade 3	1356	47.35	45.73	-1.61**	1373	47.68	48.73	1.05
<b>Total</b>	<b>2820</b>	<b>49.40</b>	<b>46.72</b>	<b>-2.68**</b>	<b>2852</b>	<b>46.30</b>	<b>48.03</b>	<b>1.72**</b>

\*\* Significant at  $p \leq 0.01$

below grade level and at or above grade level for the 2002 Stanford 9 and Aprenda 1 reading subtests are reported in **Table 15**. For Stanford 9 reading subtest, 77% of the kindergarten students were at or above grade level, while a greater percentage of first through third grade students were below grade level than at or above grade level. Specifically, the percentage below grade level ranged from 70% in first grade to 85% in third grade. For the Aprenda 1 reading subtest, 60% of the kindergarten students were at or above grade level while a greater percentage of students were below grade level at grades one through three. After kindergarten students, the highest percentage of students reading on or above grade level occurred for students in the first grade with 43%. The percentage of students below grade level ranged from 57% to 61%.

The percentage of Class-Size Reduction students below grade level and at or above grade level for the 2002 Stanford 9 and Aprenda 1 mathematics subtests are reported in **Table 16**. The Stanford 9 results show a greater percentage of students scored below grade level than at or above grade level. More specifically, 64% of the kindergarten students, 80% of first grade students, 74% of second grade students, and 72% of

third grade students performed below grade level. Therefore, the greatest percentage of students performing on grade level were in kindergarten (36%). For the Aprenda 1 mathematics subtest, a greater percentage of students performed below grade level than at or above grade level. The percentage of students performing below grade level ranged from 79% at kindergarten to 62% at third grade.

The percentage of regular classroom students below grade level and at or above grade level on the 2002 Stanford 9 and Aprenda 1 reading subtests are reported in **Table 17**. On the reading subtest, a greater percentage of kindergarten students (78%) performed at or above grade level than below grade level followed by grade 1 (52%). At the same time, the greater percentage of students at grades 2 and 3 performed below grade level, 62% and 64%, respectively. The percentage of students at or above grade level on the Aprenda 1 reading subtest was greater than below grade level. Specifically, 82% of kindergarten students, 74% of students at grade 1, 70% of grade 2 students, and 68% of grade 3 students performed at or above grade level.

The percentage of regular classroom students

Table 14: Comparison of Two Years of Aprenda Reading and Math Mean NCE Scores for a Cohort of Regular Classroom Students in Participating Schools by Grade Level, Spring 2001 and Spring 2002

Cohort	# Taking	Reading			Mathematics		
		2001 NCE	2002 NCE	NCE Change	2001 NCE	2002 NCE	NCE Change
Grade 1	83	36.28	55.31	19.02**	29.74	45.41	15.66**
Grade 2	756	65.52	58.62	-6.90**	55.78	58.11	2.32**
Grade 3	373	63.80	57.28	-6.51**	60.35	53.54	-6.81**
<b>Total</b>	<b>1218</b>	<b>62.93</b>	<b>57.97</b>	<b>-4.95**</b>	<b>55.40</b>	<b>55.83</b>	<b>.42</b>

\*\* Significant at  $p \leq 0.01$

Table 15: Percentage of Class-Size Reduction Students Below Grade Level and At or Above Grade Level for Stanford 9 and Aprenda 1 Reading Performance, Spring 2002

Grade	Stanford 9 Reading				Aprenda 1 Reading			
	Below		At or Above		Below		At or Above	
	N	%	N	%	N	%	N	%
Kindergarten	14	23	47	77	34	40	50	60
Grade 1	702	70	305	30	190	57	145	43
Grade 2	407	83	86	17	117	60	79	40
Grade 3	519	85	89	15	62	61	39	39

below grade level and at or above grade level for the 2002 Stanford 9 and Aprenda 1 mathematics subtests are reported in **Table 18**. On the Stanford 9 mathematics subtest, a greater percentage of students were below grade level than at or above grade level. More specifically, the greatest percentage of students performing at or above grade level were in the second grade (47%) followed by 46% in the third grade, 45% in kindergarten, and 40% in first grade. On the Aprenda 1 mathematics subtest, with the exception of kindergarten and first grade students, a greater percentage of students performed at or above grade level than below grade level. The percentages of students performing at or above grade level ranged from 64% at grade 2 to 43% at kindergarten. Fifty percent of grade 1 students scored in each category.

**Tables 19** compares Spring 2002 Stanford 9 mean NCE and NPR reading and mathematics scores by grade level and CSR class model. In reading, Single Classroom students scored from 4 to 6 points higher than Team Teaching and Small Group classroom students at each grade level. Team Teaching and Small Group students scored within 1 to 4 points of each other, overall. At grade 1, Team Teaching and Small Group students scored equally, while students in Small Group scored higher at grade 2, and Team Teaching students scored higher at grade 3. In

mathematics, Single Classroom students scored higher than Team Teaching and Small Group students, except at grade 3, students in Team Teaching classrooms scored 5 points higher than Single class students and 7 point higher than Small Group students. However, Small Group classroom students scored higher than Team Teaching students at grades 1 and 2 by one and three points, respectively. Only first grade Single Classroom students had an NPR score within the average range of 45% to 55%, while all other NPR scores were below average.

**Table 20** compares Spring 2002 Aprenda 1 mean NCE and NPR reading and mathematics scores by grade level and CSR class model. In reading, first grade Single Classroom students scored higher than students in other classroom models. However, at the second and third grades Team Teaching classroom students scored higher than students in the other classroom models. Additionally, students in the Small Group classrooms scored higher than students in the Single Classroom model at the third grade. NPR scores for students in the Team Teaching classrooms scored fell within the average range at grade 3 and above average at grade two. In mathematics, Team Teaching classroom students scored higher at the first grade, Small Group students scored higher at grade 2 and Single Classroom students scored higher at grade

Table 16: Percentage of Class-Size Reduction Students Below Grade Level and At or Above Grade Level for Stanford 9 and Aprenda 1 Mathematics Performance, Spring 2002

Grade	Stanford 9 Mathematics				Aprenda 1 Mathematics			
	Below		At or Above		Below		At or Above	
	N	%	N	%	N	%	N	%
Kindergarten	39	64	22	36	66	79	18	21
Grade 1	811	80	206	20	252	76	80	24
Grade 2	366	74	130	26	123	63	73	37
Grade 3	433	72	172	28	63	62	38	38

Table 17: Percentage of Regular Classroom Students Below Grade Level and At or Above Grade Level for Stanford 9 and Apenda 1 Reading Performance, Spring 2002

Grade	Stanford 9 Reading				Apenda 1 Reading			
	Below		At or Above		Below		At or Above	
	N	%	N	%	N	%	N	%
Kindergarten	27	22	93	78	16	18	74	82
Grade 1	1336	48	1459	52	263	26	747	74
Grade 2	724	62	451	38	256	30	591	70
Grade 3	903	64	498	36	131	32	277	68

3. Only the NPR scores at grade 3 for Single Classroom students and grade 1 Team Teaching classroom students fell within the average range. All other NPR scores were below average.

**What were the teachers' perceptions of the Class-Size Reduction program?**

Teacher Survey forms were completed by participating Class-Size Reduction teachers during spring 2002. The survey elicited perceptions regarding CSR classroom teaching experiences and the effectiveness of the professional development training. Returned by 151 (80%) of the active 189 Class-Size Reduction teachers, the classroom teaching section of the instrument consisted of twelve items. Teachers were to indicate their level of agreement with each item.

**Table 21** contains the results regarding teaching experiences and reveals that the items receiving the most agreement (combining “agree” and “strongly agree” responses) included the following: more hands-on activities (93%), more often involving students in problem solving, creating, and experimenting (89%), more often based activities on students’ prior knowledge and interests (88%), more in-depth coverage (84%), more time teaching rather than managing (82%), and more time with individual students planning and

implementing learning activities (82%). The items that received the strongest agreement were more hands-on activities (51%) and more time teaching rather than managing (47%). Further, the item which addressed teacher understanding of the program goals received strong agreement (58%) and agreement (34%) indicating that respondents perceived themselves as clearly understanding the goals of the Class-Size Reduction program. Additionally, the items that received a lack of agreement (“disagree” and “disagree strongly”) referred to covering content at a quicker pace (47%) and more time diagnosing students learning problems (31%), and covering content at a quicker pace receiving the greatest amount of strong disagreement (7%).

Teachers’ perceptions regarding the level of effectiveness of the professional development training opportunities were also reported on the Teacher Survey. The possible range of scores was from 1 to 4, with one being least effective and 4 being most effective. **Table 22** contains the training, the rating by number and percent, as well as the average score. Overall, the average scores ranged from 2.9 to 3.6, with only one workshop with a rating lower than 3.2 points. The specific average ratings from the most effective to the least effective were 3.6 - Reading Comprehension, 3.5 - Oral Language Development, Diagnostic and Prescriptive Teaching, Reading and Writing Across the

Table 18: Percentage of Regular Classroom Students Below Grade Level and At or Above Grade Level for Stanford 9 and Apenda 1 Mathematics Performance, Spring 2002

Grade	Stanford 9 Mathematics				Apenda 1 Mathematics			
	Below		At or Above		Below		At or Above	
	N	%	N	%	N	%	N	%
Kindergarten	66	55	54	45	51	57	39	43
Grade 1	1714	60	1136	40	499	50	508	50
Grade 2	621	53	558	47	306	36	541	64
Grade 3	758	54	642	46	176	43	230	57

Table 19: Stanford 9 Reading and Mathematics NCE and NPR by CSR Classroom Model and Grade Level, 2001–2002

Grade	Reading								
	Single			Team			Group		
	N	NCE	NPR	N	NCE	NPR	N	NCE	NPR
1	224	48	45	82	42	36	671	42	35
2	205	39	30	51	34	22	236	35	24
3	257	37	26	101	37	27	278	33	21
<b>Total</b>	686	41	34	234	38	28	1185	37	27

Grade	Mathematics								
	Single			Team			Group		
	N	NCE	NPR	N	NCE	NPR	N	NCE	NPR
1	224	44	38	81	35	24	681	36	26
2	206	37	27	51	33	21	238	36	25
3	256	40	33	101	45	40	276	38	29
<b>Total</b>	686	40	33	233	38	28	1195	37	27

Curriculum, Classroom Management Strategies, Developing Accuracy and Fluency, Reading Comprehension, 3.4 - Proactive Beginning Reading, Photo-Graphix, Integration of Music, Rhyme, and Patterns in Reading, Multi-Sensory Grammar, Foundations of Language, 3.3 - Esperanza, Books, Books, Books, and Not a Guide in Sight, "New" Teacher Preparation and Classroom Management Strategies, Advanced Reading Comprehension, Written Composition, 3.2 - Inquiry Based Learning and Genre Study, Patterning and Algebraic Reasoning Mathematics, Structure of Language, Scientific Spelling, Advanced Multi-Sensory Grammar, and 2.9 - History of the English Language.

#### What program strengths and weaknesses were articulated by the teachers?

There were a total of 151 teachers responding to questions regarding program challenges, strengths and recommendations based on the Teacher Survey. In some categories, teachers supplied more than one response. Three categories emerged based on teachers' perceptions regarding the strengths of the program. The categories included enhanced instruction (n=135), increased academic achievement for students at-risk for academic failure (n=72), and professional development opportunities (n=23). Teachers

Table 20: Apenda 1 Reading and Mathematics NCE and NPR by CSR Classroom Model and Grade Level, 2001–2002

Grade	Reading								
	Single			Team			Group		
	N	NCE	NPR	N	NCE	NPR	N	NCE	NPR
1	111	43	36	1	40	31	191	38	28
2	77	47	44	1	58	64	135	45	41
3	17	43	36	5	51	53	87	48	46
<b>Total</b>	205	44	39	7	50	49	413	44	38

Grade	Mathematics								
	Single			Team			Group		
	N	NCE	NPR	N	NCE	NPR	N	NCE	NPR
1	110	38	29	1	51	52	189	36	25
2	77	44	39	1	42	35	135	46	42
3	17	48	46	5	37	27	87	47	44
<b>Total</b>	204	43	38	7	43	38	411	43	37

Table 21: Teacher Perceptions of the Class-Size Reduction Program By Content of Survey Items, 2001–2002

Survey Items by Content	Strongly Disagree		Disagree		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%
	I spent more time teaching rather than managing the classroom.	7	5	19	13	52	35	71
I covered content at a quicker pace.	11	7	60	40	50	34	29	19
I covered content in greater depth.	4	3	20	13	76	50	51	34
I spent more time diagnosing students' learning problems.	9	6	38	25	67	45	35	24
I spent more time with individual students planning and implementing learning activities.	4	3	22	15	65	44	56	38
I spent more time assessing students' progress.	4	2	34	23	70	47	42	28
I spent more time developing, discussing, and answering students' questions.	4	3	21	14	75	50	50	33
I involved students in more hands-on activities.	3	2	7	5	62	42	75	51
I more often based activities on students' prior knowledge and interests.	2	2	15	10	80	54	50	34
I more often involved students in problem solving, creating, and experimenting.	2	1	15	10	90	60	43	29
I offered students more opportunities to choose among learning activities.	2	1	36	24	81	55	29	20
I understand the goals of the class-size reduction program.	2	1	10	7	50	34	84	58

indicated that teaching was enhanced due to more opportunities for individualized instruction, hands-on activities, and learning and utilizing student strengths. Additionally, respondents expressed the belief that, in the smaller classrooms, students were more able to express themselves without fear of embarrassment, thereby, increasing student risk-taking, self-confidence and self-esteem. Overall, teachers reported behavioral problems were reduced in the smaller class setting, allowing more time on educational tasks.

Teachers reported that many of the students in CSR classes were at-risk students who typically fall through the cracks in regular classroom settings. More specifically, teachers indicated that in the smaller class setting, opportunity for repetition, flexible instruction, and reduced distractions were helpful in improving student academic weaknesses. Respondents indicated that they were able to watch the growth of at-risk students.

Teachers indicated that professional development opportunities were an excellent asset to the program.

Respondents indicated that the variety of topics and the ongoing availability of training were beneficial. In addition, teachers reported that training materials provided at the workshops were valuable and effective tools for classroom instruction.

Teachers were asked to specify challenges encountered with regard to Class-Size Reduction program implementation. Two primary categories emerged—program support and student selection. The largest number of responses referred to a lack of program support as indicated by unclear, inconsistent, or ignored program design and/or guidelines (n=49), inadequate facilities, equipment, or materials (n=40), and inadequate professional development scheduling or topics (n=27). Six teachers reported a lack of parental support or follow-up as a major challenge. No challenges were encountered by some (n=43). Teachers reported that changes in program guidelines resulted in classroom instability, well into the school year. Others indicated that some regular classroom teachers did not support program efforts by retaining students who were

Table 22: Perceptions of the Effectiveness of Professional Development Opportunities According to Class-Size Teachers, 2001–2002

Training	Least Effective				Most Effective				N/A		Average Score
	1		2		3		4		N	%	
	N	%	N	%	N	%	N	%			
Reading Comprehension Proactive Beginning Reading	-	-	2	1	37	27	67	48	33	24	3.6
Phono-Graphix Training	3	2	7	5	30	21	56	40	45	32	3.4
Esperanza Training (Bilingual)	2	1	8	6	29	21	53	37	50	35	3.4
Books, Books, Books, and Not a Guide in Sight Oral Language Development	3	2	3	2	14	11	24	18	88	67	3.3
Inquiry Based Learning and Genre Study	2	1	11	8	35	25	36	26	54	39	3.3
Diagnostic and Prescriptive Teaching	-	-	5	4	35	25	58	42	40	29	3.5
"New" Teacher Preparation and Classroom Management Strategies	3	2	8	6	33	24	28	21	64	47	3.2
Reading and Writing Across the Curriculum	-	-	7	5	24	18	48	36	54	41	3.5
Integration of Music, Rhyme, and Patterns in Reading	2	2	9	7	26	20	34	25	63	47	3.3
Patterning and Algebraic Reasoning Mathematics Classroom Management Strategies	-	-	5	3	33	24	52	38	48	35	3.5
History of the English Language	1	1	8	6	25	18	36	27	65	48	3.4
Neuhaus Education Center Training:	4	3	3	2	29	22	25	19	73	54	3.2
Multi-Sensory Grammar	1	1	2	2	32	24	37	28	59	45	3.5
Structure of Language	8	6	18	13	25	18	24	18	61	45	2.9
Developing Accuracy and Fluency	3	2	9	6	38	27	62	44	29	21	3.4
Foundations for Language	5	4	8	6	46	33	42	30	37	27	3.2
Reading Comprehension	-	-	6	4	36	26	57	41	39	28	3.5
Advanced Reading Comprehension	-	-	13	9	40	29	51	36	36	26	3.4
Written Composition	1	1	9	6	34	24	70	50	27	19	3.5
Scientific Spelling	2	2	10	7	26	19	35	26	63	46	3.3
Advanced Multi-Sensory Grammar	-	-	12	9	37	27	39	29	50	37	3.3
	6	4	12	9	40	29	50	36	31	22	3.2
	3	2	8	6	27	21	28	21	65	50	3.2

to participate in CSR or by not collaborating well with the CSR teacher. Some indicated that the CSR model utilized on the campus did not meet the specific needs of students very well or did not accommodate the overall school scheduling. Additionally, teachers stated that school resources were not sufficient to accommodate students' needs. One teacher reported using

personal funds to buy classroom materials, regularly. Four teachers indicated that bilingual materials were greatly needed and two indicated that more materials for students with dyslexia should be supplied. One teacher reported that, in general, the wording of learning aids is not "student-friendly." Many indicated that the instructional facilities were problematic, but did not

give details on the subject, while other respondents specified that shared classrooms and converted classroom settings made meaning instruction quite difficult. It was suggested by two teachers that many behavioral problems were generated by the inadequacy of the educational facilities.

The scheduling of professional development opportunities presented an additional challenge to some teaching staff. Many wanted to see more non-reading related workshops while others reported a lack of available time to attend training. Some perceived training during school times as problematic while others found after-school and Saturday training sessions a challenge. One indicated that the primary problem with respect to professional development was having more workshops than she or he could attend.

A substantial number of respondents perceived aspects of the program design as problematic. Specifically, two teachers reported great difficulty in having a single classroom of 18 students with behavioral problems. The heterogeneous grouping of students with different academic needs was a challenge expressed by some teachers. More often teachers stated that the number of students was too large ( $n=11$ ) while others reported that the number should be increased ( $n=6$ ) or extended to other grade levels ( $n=5$ ) and students ( $n=4$ ). Teachers also indicated that the greatest challenge was working with students with low academic skills ( $n=3$ ).

The categories that emerged based upon the teachers' recommendations to better serve students directly reflected the previously identified emergent categories including CSR classroom models, facilities and materials, professional development, and student selection. Teachers recommended changes to the program design by maintaining consistent guidelines from the start of the school year ( $n=11$ ), providing campus support to CSR teachers ( $n=4$ ), providing more support to bilingual teachers ( $n=4$ ), providing quiet and adequate facilities ( $n=4$ ), adjusting classroom models ( $n=56$ ), providing more equipment and educational materials ( $n=17$ ), improving focus on content areas beyond reading ( $n=2$ ), offering training workshops at different times ( $n=6$ ), scheduling workshops on additional topics ( $n=9$ ), and changing the criteria for student selection ( $n=3$ ). Some teachers explicitly recommended the continuation or extension of the program ( $n=16$ ) while none recommended discontinuation of the program.

## Discussion

The purpose of this evaluation was to describe the implementation of the Class-Size Reduction program in relation to its stated goals and to determine its effectiveness on student achievement. The major findings of the evaluation will be discussed, followed by recommendations for program improvement.

Understanding program implementation as a key factor affecting student academic achievement (Cohen, Raudenbush, & Ball, 2000), program reorganization efforts were spearheaded by the Title VI Supervisor-External Funding Department and the Department of Research and Accountability. The goal was to more uniformly implement and assess the 2001–2002 Class-Size Reduction program. Activities to refine CSR programming were supported by Central Administration, the Administrative Districts, campus administrators, and CSR teachers. The target areas were supported by research suggesting specific conditions that supported the positive effects of Class-Size Reduction (Biddle and Berliner, 2002). Reorganization efforts resulted in districtwide reports indicating increased uniformity in many of the targeted areas including adherence to an approved classroom model for grades K–3, assignment of full-time CSR teachers, maintenance of an 18-student limit per CSR teacher, and CSR instruction covering all the content areas. However, one strong recommendation offered by teachers addressed complications caused by program adjustments that impacted some classrooms into October or November of the school year. Nonetheless, reorganization strategies caused increased uniformity in CSR program implementation in the majority of the participating campuses, according to interviews and the data submitted by program stakeholders. The remaining campuses did not appear to respond well to multi-level attempts to uniformly refine the CSR program structure to better reflect the intent of the grant. Administrative District Representatives for CSR played a key role in disseminating and collecting crucial information and actively supporting the proliferation of a positive attitude toward making the necessary programmatic adjustments to support program success.

The challenge of gathering data necessary to accurately assess program implementation across the district remained. Strategies to develop effective processes and create comprehensive instruments to meet internal and external needs were implemented.

Campus personnel, while addressing the ongoing educational demands of their constituents, were also required to shoulder the responsibility of accurately supplying an array of campus-level information as mandated by state and national funding sources. The campus-level response to data requests was typically timely and positive. Fortunately, a clearer image of districtwide program implementation was made available, and trouble-shooting efforts were enacted as the need for clarification or correction was identified. However, the accuracy of some crucial data pertaining to specific campuses and students continued to be difficult to access. Additionally, although information necessary to respond to last year's state and national data requests was included in data collection instruments early in the current year, state and national data requests changed significantly, requiring great efforts to retrieve new data and reinterpret existing data.

One internal factor that inadvertently produced undermining effects for CSR program implementation was the districtwide decentralization of campus funding. Supported by research on the topic (Biddle and Berliner, 2002), campus principals most often chose the more qualified teachers to support the efficacy of the CSR program. Eighty-two percent of the CSR teachers had more than two years of teaching experience and seventy-three percent had six or more years of experience, indicating a significant amount of campus funds were required to supplement first-year teacher salaries provided through the grant. Informal interviews with principals, teachers and administrative district representatives made it clear that the CSR budgetary burden, previously consumed by Central Administration, now presented a major dilemma at the campus level, making it difficult to maintain the relatively expensive CSR endeavor using the appropriate teachers, those who are more highly qualified (Biddle and Berliner, 2002; Roza, 2001).

Conclusive findings have linked reduced class size to improved literacy skills and increased student achievement in the lower grades, (Achilles, 1999; Clinton, 1999; Hallabach, Ehrle, Zahorik, & Molnar, 2001), especially for at-risk groups including African American, Latino, and low-income students (National Black Caucus of State Legislators, 2001). The most impressive data gathered in this investigation shows the experiences of CSR classroom teachers and administrators. Findings clearly indicated perceived advantages of the CSR program, especially for students who previously had difficulties learning in regular-

size classrooms, but also for students who had previously been academically successful. The first-hand classroom experiences of many of the CSR teachers substantiated research indications that lowering class-size in the early grades produces educational benefits. CSR teachers reported more time-on-tasks and greater student participation, a less competitive and more self-esteem building environment, increased knowledge of student strengths and weaknesses with greater opportunities to adjust accordingly. Observations of the different CSR models revealed Single Classrooms most often utilized better facilities and equipment. However, regardless of model, learning activities were enhanced. At-risk students including African American, Latino, and low-income students were over-represented in the demographic student participants in the program. Given the *No Child Left Behind* mandate and other high stakes legislation that are currently on the horizon, CSR and proactive approaches to increase academic achievement among these groups remain a necessary expense.

Additionally, the overwhelming positive comments and ratings used to describe the variety and effectiveness of the professional development opportunities provided by this grant were noteworthy. The training investment reflected an important compliment to the primary initiative of reducing class-size, as indicated in prior research (Odden & Picus, 2002). However, professional development opportunities remained primarily centered on reading-related intervention strategies. An expansion of the subject matter addressed in the workshops and specialized training schedules are likely to increase teacher satisfaction with this aspect of CSR programming.

The academic performance of CSR and regular classroom students showed increases in reading and mathematics at the first grade level on the Stanford 9 and Aprenda 1. Additionally, in mathematics increases were apparent at the third grade level on the Stanford 9 and at the second grade level on the Aprenda 1. Although these trends were positive, the data indicated that a greater percentage of CSR students performed below grade level than at or above grade level. However, the CSR program showed some trends that were more positive than the downward trend found districtwide (See **Appendix G**). Ultimately, comparative statements about student achievement results must be made with caution, since the achievement measures and/or norms were not consistent over the years tracked.

Next year, HISD will use a portion of the funding from the *No Child Left Behind Act*, Title II, Part A to continue the Class-Size Reduction program for the 2002–2003 school year only.

## Recommendations

1. For classroom stability, consider maintaining clear guidelines from the start of the year, and utilizing one classroom model. Consider funding only campuses with appropriate facilities.
2. Implement utilization of identified SASI fields to improve accuracy in tracking program participants.
3. Expand training topics to include intervention strategies for various student groups, learning styles, and content areas to address the expressed needs of teachers. Consider offering computer-based training modules for increased training availability.
4. Consider further assessment of effective training through classroom observations to determine strategies utilized.
5. Consider maintaining an internal accountability system to assess the critical program components that are delineated by state and federal guidelines.
6. Consider re-evaluation of program infrastructure to monitor classrooms, provide support to teachers, and communicate implementation concerns to the Central Office. Routinely utilize the abbreviated classroom observation instrument to uniformly assess implementation.
7. Consider conducting ongoing parent support workshops to expose parents to the program and assist them with selecting academic materials to support classroom learning at home.

## References

- Achilles, C.M. (1999). *Let's Put Kids First, Finally: Getting Class Size Right*. Thousand Oaks, California: Corwin Press, Inc.
- Biddle, B. J., & Berliner, D. C., (2002). Small Class Size and Its Effects. *Educational Leadership*, 59(5), 12-23.
- Clinton, W. (1998). State of the Union Address [Online]. <http://www.whitehouse.gov/WH/SOTU98/address.html>.
- Clinton, W. (1999). President Clinton: Announcing the success of the class-size reduction initiative [Online]. <http://www.whitehouse.gov>
- Cohen, D. K., Raudenbush, S. W., & Ball, D. L. (2000). Resources, Instruction, and Research. Center for the Study of Teaching and Policy. University of Washington, December. Document W-00-2.
- Finn, J.D., & Achilles, C.M. (1999). Tennessee's Class Size Study: *Findings, Implications, Misconceptions*. *Educational Evaluation and Policy Analysis*, 21(2), 97–109.
- Halbach, A., Ehrle, K., Zahorik, J., & Molnar, A. (2001, March). Class size reduction: From promise to practice. *Educational Leadership*, 58(6), 32-35.
- Molnar, A., Smith, P., Zahorik, J., Palmer, A., Halbach, A., & Ehrle, K. (1999). Evaluating the SAGE Program: A Pilot Program in Targeted Pupil-Teacher Reduction in Wisconsin. *Education Evaluation and Policy Analysis*, 21 (2), 165–177.
- National Black Caucus of State Legislators Committee on Elementary and Secondary Education. (2001, November). Closing The Achievement Cap: Improving Educational Outcomes for African American Children. *Education Report 2001*.
- Odden, A. R., & Picus, L. O., ( 2002). *School Finance A Policy Perspective*. 2nd edition, McGraw Hill.
- Rees, N. S., & Johnson, K. (2000, May 30). A lesson in smaller class sizes. *Heritage Views 2000* [Online]. <http://www.heritage.org/views/2000/ed053000.html>.
- Roza, M. (2001). The challenge for Title I. *Education Week*, 20(29), 56, 38.
- Texas Education Agency. (2001). Division of Student Support Programs: Program Guide for Class-Size Reduction Programs [Online]. <http://www.tea.state.tx.us/student.support/reauth.html#top>.
- Texas Education Agency. (2002). Division of Student Support Programs: Reauthorization Updates - *The No Child Left Behind Act of 2001* [Online]. <http://www.tea.state.tx.us/student.support/reauth.html#top>.
- U.S. Department of Education. (2002). Class Size Reduction Program [Online]. <http://www.ed.gov/offices/OESE/ClassSize/index.html>.
- Wasley, P. (2002). Small Classes, Small Schools: The Time Is Now. *Educational Leadership*, 59(5), 6-10.

## Appendix A

### Class-Size Reduction Campuses, 2001–2002

District	School Name	District	School Name	District	School Name
Acres Homes	Wesley	North Central	Eighth Avenue	South Central	Garden Villas
Acres Homes	Osborne	Northeast	Atherton	South Central	Hartsfield
Alternative	Rice	Northeast	Scott	South Central	Douglass
Central	Jones J. W.	Northeast	Sanderson	South Central	Brookline
Central	MacGregor	Northeast	Eliot	South Central	Foster
Central	Wilson	Northeast	Issacs	South Central	Alcott
Central	Gregory-Lincoln	Northeast	Ross, B	South Central	Lockhart
Central	Wharton	Northeast	Kashmere Gardens	South Central	Whidby
Central	Rogers W.	Northeast	Houston Gardens	Southeast	Bonner
Central	Poe	Northeast	Henderson N. Q.	Southeast	Davila
Central	Mark Twain	Northeast	Crawford	Southeast	Patterson
East	Clinton Park	Northeast	Jones, A.	Southeast	Rucker
East	Burnet	Northeast	Concord	Southeast	Crespo
East	Harris R.P.	Northeast	Smith E. O.	Southeast	Lewis
East	Briscoe	Northeast	Dogan	Southeast	Park Place
East	Tijerina	Northeast	Pugh	Southeast	Southmayd
East	Pleasantville	Northwest	Stevens	Southeast	Harris, J. R.
East	Carrillo	Northwest	Durham	Southwest	Bell
East	Henderson J. P.	Northwest	Sinclair	Southwest	Shearn
East	Lantrip	Northwest	Allen	Southwest	Elrod
East	Cage	Northwest	Hohl	Southwest	Rodriquez S.R.
East	Oates	Northwest	Wainwright	Southwest	Kolter
East	Port Houston	Northwest	Garden Oaks	Southwest	Sugar Grove
East	Rusk	Northwest	Holden	Southwest	Foerster
East	Franklin	Northwest	Kennedy	Southwest	Anderson
East	De Zavala	Northwest	Smith	Southwest	Parker
East	Whittier	South	Windsor Village	Southwest	Braeburn
East	Gallegos	South	Grimes	Southwest	Gordon
North	Northline	South	Petersen	Southwest	Argyle
North	Durkee	South	Law	Southwest	Tinsley E.
North	Barrick	South	Reynolds	Southwest	Fondren
North	Herrera	South	Carnegie	Southwest	Benavidez
North	Coop	South	Grissom	Southwest	Red
North	Janowski	South	Almeda	Southwest	Sutton
North	Lyons	South	Young E.M.	Southwest	Valley West
North	Scarborough	South	Mading	Southwest	Horn
North	Garcia	South	Codwell	Southwest	Milne
North	Berry	South	Bastian	Southwest	Cunningham
North	De Chaumes	South	Fairchild	Southwest	Condit
North	Burbank	South	Hobby	Southwest	Herod
North	Roosevelt	South	Frost	Southwest	Gross, J.M.
North Central	Stevenson	South	Mitchell	West	Ashford
North Central	Looscan	South	Rhoads	West	McNamara
North Central	Lee	South	Montgomery	West	Sands Point
North Central	Lamar	South Central	Peck	West	Bonham
North Central	Memorial	South Central	Kelso	West	Post Oak
North Central	Martinez C.	South Central	Turner	West	Askew
North Central	Milam	South Central	MacArthur	West	Emerson
North Central	Field	South Central	Blackshear	West	Piney Point
North Central	Crockett	South Central	School	West	Briargrove
North Central	Burrus	South Central	Dodson	West	Briarmeadow
North Central	Ryan	South Central	Golfcrest	West	Walnut Bend
North Central	Jefferson	South Central	Gregg	West	White
North Central	Sherman	South Central	Thompson	West	Pilgrim

## Appendix B

Office of Superintendent of Schools  
Board Meeting of June 21, 2001

June 4, 2001

Office of School Support Services  
Faye B. Bryant, Executive Deputy Superintendent

**SUBJECT: 2001-2002 ANNUAL APPLICATIONS FOR TITLE I " PART A-BASIC AND CONCENTRATION; TITLE " PART A-CAPITAL EXPENSE; TITLE I " PART C-MIGRANT; TITLE I, PART D-DELINQUENT; TITLE II'-DWIGHT D. EISENHOWER PROFESSIONAL DEVELOPMENT; TITLE IV-SAFE AND DRUG-FREE SCHOOLS AND COMMUNITIES (SDFSC); TITLE VI, PART C-LOCAL INNOVATIVE EDUCATION PROGRAMS; TITLE VI (ESEA) -CLASS SIZE REDUCTION PROGRAM; SPECIAL EDUCATION STUDENT FUNDING- INDIVIDUALS WITH DISABILITIES ACT, PART B (IDEA-B); CARL D. PERKINS ACT**

Each year the district submits applications for entitlement funds to the Texas Education Agency under the Elementary and Secondary Education Act of 1965, as amended Improving America's Schools Act of 1994. The provisions are outlined below.

### **TITLE VI (ESEA) -CLASS -SIZE REDUCTION PROGRAM**

For school year 2001-2002, grant funds are allocated to the district to reduce the class size in the early grades, kindergarten through three. The tentative entitlement to HISD for school year 2001-2002 is \$9,171,626. The intent of the grant is to assist schools in overall student achievement by reducing class sizes to no more than 18 children per class. Seventy-two percent of the LEA funds (\$6,603,570) are allocated for hiring and training for an estimated 177 new teachers. Twenty-five percent of the LEA funds (\$2,292,906) are allocated for professional development of teachers, and three percent (\$275,148) towards local administrative costs.

# E-1

## Appendix C

**Class-Size Reduction (CSR) Program: 2001–2002  
PRINCIPAL QUESTIONNAIRE – CAMPUS INFORMATION  
Deadline: December 5, 2001**

Thank you for taking the time to complete this form. Please read all instructions and respond to every question in each category. **Only use the PIEMS October 26, 2001 Report for this form.** It may be helpful to make a copy of this blank form to record CSR changes during the year. Please sign the commitment statement at the end of this form.

PLEASE PRINT OR TYPE

1. Campus Name: 2. Admin. District:
3. Campus Number: 4. Principal:
5. Name of person completing this form:
6. Did your campus participate in the Class-Size Reduction Program in 2000–2001?  
 YES  
 NO
7. Does your campus have a Class-Size Waiver Request for category No.#3 (classes above the 22:1 mandated ratio) on file with the HISD School Assistance Office?  
 YES  
 NO – Skip to item #9.
8. If #7 is YES, does the Class-Size Waiver Request on file match the grade level(s) for the CSR teacher(s) on your campus?  
 YES  
 NO
9. What is the number of 2001–2002 Class-Size Reduction teachers hired on your campus?
10. Have you identified all of your CSR teachers as new, first-year teachers?  
 YES – Skip to #12.  
 NO
11. If #10 is NO, what is the additional amount contributed from the campus GF1 funds for CSR teacher salary/salaries?  
 CSR Teacher #1 \_\_\_\_\_ CSR Teacher #2 \_\_\_\_\_ CSRTeacher#3: \_\_\_\_\_
12. **Please do not include Combined/Split Grade Level Classes. Do not include the 2001–2002 Class-Size Reduction teacher(s) into the before CSR campus numbers. Include the 2001–2002 Class-Size Reduction teacher(s) into the after CSR campus numbers. Please indicate the teachers and students per grade level.**

Table Item12: Number of Teachers and Students Before and After CSR Program Teacher(s)				
SINGLE GRADE LEVEL	Number of Teachers per Grade Level		Number of Students per Grade Level	
	Before CSR	After CSR	Before CSR	After CSR
Kindergarten				
First				
Second				
Third				

### Appendix C (continued)

13. **If applicable**, please complete the following table with information on **Split Level or Multi Level Classes Only - Before and After** including the 2001–2002 Class-Size Reduction Teacher(s) into the Campus Numbers. **Please do not include Single Level Classes.** In the first column indicate the specific grade levels that are joined. In the following columns indicate the total number of classes and/the total number of students in those classes.

Table Item 13: Number of Teachers and Students Before and After 2001-2002 CSR Program		
COMBINED OR SPLIT GRADE LEVELS	Number of Classes and Students Before Adding CSR Teacher(s)	Number of Classes and Students After Adding CSR Teacher(s)
K / 1	/	/
1 / 2	/	/
2 / 3	/	/
Ungraded		

14. Using your **Staffing Report**, please indicate the maximum Class Size (the size of the class that has the largest number of students enrolled) at each grade level before 2001-2002 CSR classes and after 2001-2002 CSR classes were added to the campus numbers. Indicate the total number at each grade level.

Table Item 14: Maximum Class Size-Before and After CSR Program at Each Grade Level				
Maximum Class Size	Kindergarten	First Grade	Second Grade	Third Grade
Before CSR				
After CSR				

- 15–23. Please list the names, social security, major duty code and PC numbers for the teachers hired with 2001–2002 CSR funds. Also, indicate the grade level(s) that were assigned to each Class-Size Reduction teacher, each Class-Size Reduction teacher's certification/endorsement status, the Class-Size Reduction Model(s) used by each teacher and the teacher's area(s) of certification. (See abbreviated definitions of CSR models\*, below).

Table Items 15–23: CLASS-SIZE REDUCTION TEACHER(S)	20. Grade Level(s) Assigned to Teacher (Check all that Apply)	21. Class-Size Reduction Model(s)* Used by Teacher (Check all that Apply)	22. Is the Class-Size Reduction teacher fully certified?	23. Area(s) of Teacher certification/endorsement: (Check all that Apply)
15a. Last Name:	a. <input type="checkbox"/> Kindergarten <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third	a. <input type="checkbox"/> Single Class <input type="checkbox"/> Team Teaching <input type="checkbox"/> Block Schedule	a. <input type="checkbox"/> Yes <input type="checkbox"/> No	a. <input type="checkbox"/> Regular <input type="checkbox"/> ECH <input type="checkbox"/> Bilingual or ESL <input type="checkbox"/> Special Ed. <input type="checkbox"/> Other
16a. First Name:				
17a. SS#:				
18a. Major Duty Code:				
19a. PC#:				
151b. Last Name:	b. <input type="checkbox"/> Kindergarten <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third	b. <input type="checkbox"/> Single Class <input type="checkbox"/> Team Teaching <input type="checkbox"/> Block Schedule	b. <input type="checkbox"/> Yes <input type="checkbox"/> No	b. <input type="checkbox"/> Regular <input type="checkbox"/> ECH <input type="checkbox"/> Bilingual or ESL <input type="checkbox"/> Special Ed. <input type="checkbox"/> Other
16b. First Name:				
17b. SS#:				
18b. Major Duty Code:				
19b. PC#:				
15c. Last Name:	c. <input type="checkbox"/> Kindergarten <input type="checkbox"/> First <input type="checkbox"/> Second <input type="checkbox"/> Third	c. <input type="checkbox"/> Single Class <input type="checkbox"/> Team Teaching <input type="checkbox"/> Block Schedule	c. <input type="checkbox"/> Yes <input type="checkbox"/> No	c. <input type="checkbox"/> Regular <input type="checkbox"/> ECH <input type="checkbox"/> Bilingual or ESL <input type="checkbox"/> Special Ed. <input type="checkbox"/> Other
16c. First Name:				
17c. SS#:				
18c. Major Duty Code:				
19c. PC#:				

**\*Abbreviated Definitions of the Class-Size Reduction Models:**

**Single Class** – Teacher provides instruction in all subjects to students in a single classroom setting.  
**Team Teaching** – Teacher teams with the regular classroom teacher to provide direct/small group instruction and assessment.  
**Block Scheduling** – Teacher provides instruction in a minimum of three 90 minute blocks of time.



## Appendix D

# Class-Size Reduction Program

## Teacher Survey 2001-2002

**Dear CSR teacher:** Please take a few moments to give us your valued opinions on the Class-Size Reduction Program in your school. Your answers are anonymous and confidential. The results will be reported in a group format and will be used to improve the program. When you complete this survey, please return it separately no later than **March 28, 2002** to the HISD Research and Accountability Department, Route 10. **Thank for your cooperation.**

**FILL IN YOUR RESPONSES ON THE SCANTRON FORM OR PRINT RESPONSES ON THIS FORM WHERE STATED.**

1. Which of the following classifications of students do you teach? (Shade in all letters that apply)

**A. Regular    B. ESL    C. Bilingual    D. Special Education    E. Other** \_\_\_\_\_

<b>Use the Scantron form to indicate your views about the CSR program:</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
2. I spent more time teaching rather than managing the classroom.	A	B	C	D
3. I covered content at a quicker pace.	A	B	C	D
4. I covered content in greater depth.	A	B	C	D
5. I spent more time diagnosing students' learning problems.	A	B	C	D
6. I spent more time with individual students planning and implementing learning activities.	A	B	C	D
7. I spent more time assessing students' progress.	A	B	C	D
8. I spent more time developing, discussing, and answering students' questions.	A	B	C	D
9. I involved students in more hands-on activities.	A	B	C	D
10. I more often based activities on students' prior knowledge and interests.	A	B	C	D
11. I more often involved students in problem solving, creating and experimenting.	A	B	C	D
12. I offered students more opportunities to choose among learning activities.	A	B	C	D
13. I understood the goals of the class-size reduction program.	A	B	C	D

Adapted from Molnar, Smith, & Zahorik (1998).

**PRINT RESPONSES IN SPACES BELOW ONLY:**

AA. What challenges have you encountered with regard to implementing the Class-Size Reduction Program? (Professional Development, Facilities, Equipment/Materials, School Support, etc.)

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BB. What are the major strengths of the Class-Size Reduction Program as you perceive them?

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CC. What recommendation would you make to better serve the students?

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**Appendix D (continued)**

Using a rating scale from A (least effective) to D (most effective) or E (does not apply), rate the effectiveness of the strategies learned from the following 2001-02 training sessions. Fill in your responses on the Scantron Form.	Least		Most		N/A
	A	B	C	D	E
14. Multi-Sensory Grammar (Neuhaus)	A	B	C	D	E
15. Books, Books, Books, and not a Guide in Sight	A	B	C	D	E
16. Developing Accuracy and Fluency (Neuhaus)	A	B	C	D	E
17. Proactive Beginning Reading	A	B	C	D	E
18. Structure of the Language (Neuhaus)	A	B	C	D	E
19. "New" Teacher Preparation and Classroom Management Strategies	A	B	C	D	E
20. Reading Comprehension (Neuhaus)	A	B	C	D	E
21. Foundations of Language (Neuhaus)	A	B	C	D	E
22. Oral Language Development	A	B	C	D	E
23. Written Composition (Neuhaus)	A	B	C	D	E
24. Scientific Spelling (Neuhaus)	A	B	C	D	E
25. Inquiry Based Learning and Genre Study	A	B	C	D	E
26. History of the English Language	A	B	C	D	E
27. Reading and Writing Across the Curriculum	A	B	C	D	E
28. Reading Comprehension	A	B	C	D	E
29. Phono-Graphix Training	A	B	C	D	E
30. Esperanza Training (Bilingual)	A	B	C	D	E
31. Advanced Reading Comprehension	A	B	C	D	E
32. Integration of Music, Rhyme and Patterns in Reading	A	B	C	D	E
33. Advanced Multi-Sensory Grammar	A	B	C	D	E
34. Patterning and Algebraic Reasoning Mathematics	A	B	C	D	E
35. Classroom Management Strategies	A	B	C	D	E
36. Diagnostic and Prescriptive Teaching	A	B	C	D	E

37. To what extent do you believe that you have incorporated learned strategies from the training sessions into your lesson plans and classroom activities?

- A. None            B. Somewhat    C. Quite a bit            D. A great deal**

38. How many years have you been teaching?

- A. 2 or less            B. 3 to 5            C. 6 to 10            D. 11 or more**

39. Counting this year as 1 (one), how many years have you taught Class-Size Reduction Classes?

- A. 1 year            B. 2 years            C. 3 years            D. Other (Specify) \_\_\_\_\_**

40. Please indicate which subjects you teach this year? Choose all that apply.

- A. Lang. Arts    B. Reading    C. Mathematics    D. Soc. Stud.    E. Other (Specify) \_\_\_\_\_**

Which of the following reflect the type of facilities where your class(es) are taught? Choose all that apply.

- |                                  |                                 |
|----------------------------------|---------------------------------|
| 41. <b>A. Classroom</b>          | 42. <b>A. Church</b>            |
| <b>B. Shared-space classroom</b> | <b>B. Temporary Building</b>    |
| <b>C. Hallway</b>                | <b>C. Cafeteria</b>             |
| <b>D. Stage</b>                  | <b>D. Converted Space</b>       |
| <b>E. None of the Above</b>      | <b>E. Other (Specify) _____</b> |

## Appendix E

### Teacher Observation Checklist

School Name: \_\_\_\_\_

Date: \_\_\_\_\_ Grade Level: \_\_\_\_\_

**Observe the classroom, materials, and atmosphere of the learning environment.**

1. In what educational setting do classes take place?
 

<input type="checkbox"/> Classroom <input type="checkbox"/> Temporary building <input type="checkbox"/> Cafeteria	<input type="checkbox"/> Shared Classroom <input type="checkbox"/> Hallway <input type="checkbox"/> Other (describe):
-------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------
  
2. Is this a print-rich environment? Check all that apply.
 

<input type="checkbox"/> Technology (computers) <input type="checkbox"/> Student work displayed <input type="checkbox"/> Classroom library <input type="checkbox"/> Song lyrics <input type="checkbox"/> Other (describe):	<input type="checkbox"/> Posters <input type="checkbox"/> Magazines <input type="checkbox"/> Menus <input type="checkbox"/> Reference materials
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------
  
3. Which of the following are present? Please check all that apply.
 

<input type="checkbox"/> Desks <input type="checkbox"/> Other (describe): <input type="checkbox"/> Learning Centers <input type="checkbox"/> Chairs <input type="checkbox"/> Blackboard	<input type="checkbox"/> Tables <input type="checkbox"/> Rugs <input type="checkbox"/> Books <input type="checkbox"/> Manipulatives (beads, play dough, letters) <input type="checkbox"/> Visual displays (alphabet, unit themes)
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
  
- b. How are the above items arranged?
  
4. Describe your overall feeling regarding the utilization of space.
 

Overall crowded arrangement  Overall spacious feel
  
5. What subjects were covered during the observation period?
 

Reading/Language Arts  Math  Science  Social studies

Adapted from Molnar, Smith, & Zahorik (1998).

## Appendix E (continued)

6. Describe how the students are arranged in the room.
- Students are seated at desks       Students are seated at tables  
 Students are seated individually       Students are in rows  
 Students are seated in groups (grouped at a table or individual desks pulled together)
7. What materials are provided/used for instruction?
- Textbooks/books       Worksheets       Calculators  
 Workbooks       Computers       Other (describe):  
 Tape recorders       Easels       Pencils/paper  
 Manipulatives (beads, letters, play dough)
8. Are there sufficient materials?     Yes       No
9. The overall atmosphere of the classroom:  
 Positive climate (why)       Negative climate (why)  
 Other (why)
10. Who is involved in delivering the lesson?  
 Teacher       Teacher and Aide       Two teachers     Other (describe):
11. What is the role for each person involved?  
 Instruction by the \_\_\_\_\_  
 Monitoring by the \_\_\_\_\_  
 Other \_\_\_\_\_
12. What types of grouping were observed? Check all that apply.
- Total class     Small groups     Individuals     Peer tutoring
13. Describe the learning activities observed in the classroom.

Student Learning Activities	Check if observed during the 30 minute period
14. Listening (information, modeling, etc. from teacher)	
15. Practicing (practice skills in seat, board work, etc.)	
16. Creating (making, dramatizing, etc.)	
17. Receiving help (assistance from teacher)	
18. Using manipulative (games, objects, etc.)	
19. Dialoguing (discussing, reading)	
20. Problem Solving (collecting, data, etc.)	
21. Receiving critique (feedback, guidance, coaching)	
22. Reflecting (self-evaluation)	
23. Responding (responding to questions, directions)	
24. Reporting (sharing accomplishments)	
25. Recitation (reading aloud, reciting in unison)	

26. How many of the students were engaged?
- All of the students       Some of the students  
 A few of the students       None of the students

**Appendix E (continued)**  
**Class-Size Reduction Observation Categories**

**Start Time** \_\_\_\_\_ **Stop Time** \_\_\_\_\_ **Number of Students** \_\_\_\_\_

<b>Individualization</b>	<b>Present (v)</b>
The teacher checks student progress.	
The teacher divides the class into subgroups/tutors.	
The teacher permits students to select learning centers or activities.	
The teacher offers assistance, guidance, help to student.	
The teacher provides whole class instruction.	
The teacher assigns students to help other students (peer tutoring).	
The teacher engages the entire class to participate in a discussion.	
<b>Engagement</b>	
The students listen to the directions, demonstrations, lectures, etc.	
Students work at their seats to complete board work, worksheets, read textbooks, use flash cards, etc.	
Students respond orally to teacher questions, follow teacher direction to write on the chalkboard, recite in unison, etc.	
Students may play educational games, role-play, dramatize, and sing.	
Students manipulate blocks, markers, objects, etc.	
Students draw, paint, make displays, write stories, etc.	
Students engage in discussion with other students or the teacher	
Students engage in investigation, inquiry, and experimentation by formulating questions, drawing conclusions, collecting data, etc.	
Students share, present, report on accomplishments, ideas, etc.	
Students evaluate their knowledge and skill based on teacher critique, experiential feedback, etc.	
Students volunteer their own ideas, perceptions, understanding,	
<b>Management</b>	
The teacher gives oral praise, stickers, prizes for academic achievement or appropriate behavior.	
The teacher gives oral reproof, isolates a student, issues a threat for inappropriate behavior.	
The teacher reminds students of class rules, procedures, etc., regarding appropriate behavior.	
The teacher personalizes learning by relating topics, ideas, etc., to students' lives, telling jokes, sharing own experiences, laughing, etc.	
The teacher turns students off to learning by ignoring students, making cutting comments, sarcasm, etc.	
The teacher allows students to develop socialization skills in areas relating to problem solving among peers.	
The teacher permits students to make choices regarding behavior (bathroom, water, other, physical behaviors).	

Adapted from Molnar, Smith, & Zahorik (1998).

## Appendix F

Demographic Description and Class-Size Model Implemented for Schools Observed, 2000–2001 School Profile Data

<b>District</b>	<b>School</b>	<b>% Afr. Am.</b>	<b>% Hisp.</b>	<b>% White</b>	<b>% Asian</b>	<b>% Native Am.</b>	<b>Free/Red Lunch %</b>	<b>At- Risk %</b>	<b>Class-Size Model</b>
<b>Central</b>	MacGregor	69	27	4	<1	0	74	35	Single
<b>Northeast</b>	Houston Gardens	98	2	<1	0	0	95	38	Single
<b>South Central</b>	Golfcrest	5	93	1	<1	0	98	75	Single
<b>East</b>	DeZavala	<1	98	2	<1	<1	93	63	Single
<b>Acres Homes</b>	Wesley	88	11	<1	<1	0	90	26	Single
<b>South</b>	Rhoads	98	2	0	0	0	90	27	Single
<b>North Central</b>	Memorial	1	93	4	1	0	93	70	Single
<b>South</b>	Alameda	24	64	10	2	<1	89	50	Team
<b>North</b>	Burbank	17	78	3	1	0	100	63	Team
<b>Southwest</b>	Gross*	-	-	-	-	-	-	-	Team/Block
<b>Alternative</b>	Rice	38	45	10	7	0	53	34	Team/Block
<b>West</b>	Post Oak	-	-	-	-	-	-	-	Group
<b>West</b>	Pilgrim	3	92	3	1	0	96	88	Group
<b>South Central</b>	TSU Lab	93	7	0	0	0	96	36	Group
<b>Northwest</b>	Hohl	48	50	1	1	<1	100	59	Group
<b>North Central</b>	Lee	4	96	0	1	0	97	65	Group
<b>North</b>	Herrera	1	97	2	0	0	98	67	Group
<b>Southeast</b>	Davilia	2	97	2	<1	0	95	70	Group
<b>East</b>	Pleasantville	95	4	1	<1	0	79	17	Group
<b>Northeast</b>	HendersonN	89	10	<1	<1	0	99	37	Group
<b>Southwest</b>	Benavidez	5	88	4	2	0	98	93	Group

### Appendix G

Comparison of Two Years of Stanford 9: Districtwide All Students Mean NCE Reading and Mathematics by Grade Level, Spring 2001 and Spring 2002

Grd	N Tested 2001	N Tested 2002	Reading			Math		
			NCE 2001	NCE 2002	Diff. 01–02	NCE 2001	NCE 2002	Diff. 01–02
1	12,911	12,148	57	55	-2	51	50	-1
2	12,677	12,075	51	49	-2	52	50	-2
3	12,550	12,698	49	48	-1	55	52	-3

Comparison of Two Years of Aprenda: Districtwide Non-Special Education Students Mean NCE Reading and Mathematics by Grade Level, Spring 2001 and Spring 2002

Grd	N Tested 2001	N Tested 2002	Reading			Mathematics		
			NCE 2001	NCE 2002	Diff. 01–02	NCE 2001	NCE 2002	Diff. 01–02
1	6,565	6,477	63	57	-6	54	49	-5
2	5,826	6,032	64	56	-8	62	55	-7
3	5,157	5,265	62	56	-6	62	55	-7