

**AN  
EVALUATION REPORT OF  
STUDENT ATTITUDE AND BEHAVIOR CHANGES  
TO  
THE TENNESSEE DEPARTMENT OF EDUCATION  
AND VOLUNTEER TENNESSEE  
ON THE LEARN AND SERVE AMERICA SCHOOL-BASED PROGRAM**

**STUDENT DATA SETS FROM 2007-2008  
YEAR TWO OF THE LEARN AND SERVE PROJECT**

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To the State of Tennessee's Department of Education and  
Volunteer Tennessee  
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## **Executive Summary of the Evaluation Outcomes for the Tennessee Learn and Serve Program**

The 2007-08 School-based Learn and Serve grant was implemented by the Tennessee Department of Education in collaboration with Volunteer Tennessee. *Twenty-one sub-grantees from public schools across the state were selected* to provide high quality service-learning projects, incorporating student voice and student planning, requiring no less than 30 hours per semester, and integrating service-learning within the academic curriculum. The sub-grantees achieved the following goals: (1) during the 2007-2008 grant year 3,482 students engaged in service-learning programs, and 2) through service-learning participation, students were reconnected to their schools and communities and gave **102,045 of hours of service to their Tennessee communities while developing academic skills and knowledge.**

In the grant proposal for this project, the primary intermediate outcomes were projected for attitudinal changes related to **student resiliency and problem-solving. Improvements in student attitudes** were expected to build over the three-year grant, as teachers trained in the Lions-Quest *Skills for Action* program developed mastery of how to use the program and learned ways to incorporate service-learning projects and tasks to academic subject areas. The survey measurement tools, *Pre/Post Resiliency Survey, Tennessee Department of Education and Volunteer Tennessee, Learn and Serve Secondary Survey, Grades 6-12*, and the *Pre/Post Resiliency Survey, Tennessee Department of Education, Learn and Serve Elementary Survey* were derived from the *School Connectedness and Student Resiliency Student Survey (Laird, Malinoff, and Black, 2002)*.

### **Evaluation Outcomes:**

- Over the 2007-2008 year, 1,077 high school students participated in service-learning and completed pre surveys and 942 of these students completed post surveys and were analyzed for growth in attitudes and projected behavior. After validity checks to exclude students experienced in service-learning on the pre survey, there were 986 high school aged service-learners at pre survey, and 942 at post survey (see Table 1 in this narrative for these valid cases).
- There were 1,058 high school comparison students in the same schools who did not participate in service-learning but completed pre surveys, and 804 comparison students completed a post survey. After excluding students experienced in service-learning, the valid case count for the comparison group was 874 students at pre survey and 749 at post survey (see Table 1 in this narrative for valid cases).
- The middle school and elementary data sets were checked for validity as well. The valid cases for middle school students were: 101 service-learning students at pre survey and 93 at post survey, and 104 comparison middle school students at pre survey and 67 at post survey.
- There were 155 elementary school students participating in service-learning who met the valid case criterion at pre survey, and 64 at post survey. The elementary comparison group of valid cases had 100 student at pre survey and 29 at post survey.
- While the overall number of surveys was larger than in previous years, some sites did not provide pre or post surveys. McNairy County did not provide pre or post data (or it was lost in the mail), and only half (mostly missing post data) of the research design surveys were provided for Northeast High, Oak Ridge Alternative, Haywood County, Oneida High School, and Warren County. Memphis City Schools had some missing data from Manassas High, Ida B. Wells Academy, Crump Elementary and Evans Elementary. Teacher illnesses and complications at the time of post surveying were the usual reasons for missing data.

- One of the key performance measures related to the overall goals of the Tennessee Learn and Serve programs was that by year 3, 60% of the students participating in service-learning activities would report increased problem-solving as measured by the survey. The intermediate outcome was targeted at 45% for year two. This performance target was not achieved; the percentage of students reporting an increase in problem-solving for year two was 41.68%. In September, 2008 to improve the performance, the evaluator discussed the need for increased program intensity, duration, and the need to use the 9 components of a high quality service-learning with site coordinators.
- A second performance measure was the outcome target that 50% of service-learning participants would increase their resiliency. This goal was achieved for 51.97% of the students in year two.
- Each item on the Resiliency survey was examined via analyses of variance and analyses of covariance to check the hypothesis that participation in service-learning was associated with attitude gains. For the high school and alternative school data set, when using analyses of covariance to control for comparison student improvements, there were nine significant gains for the attitudes statements where the service-learning students improved (at  $p < .05$ ), and another item on homework hours showed an improvement.
- Analyses of covariance demonstrated that after controlling for comparison group effects, the middle school service-learning students showed significant gains from pre survey to post survey on 8 items over their 41 item survey ( $p < .05$ ).
- The elementary data set suffered the loss of 61 comparison students at post (due to teacher illness). This limited the statistics that could be used in the analysis, and only 4 of the 25 survey items showed significance using analysis of variance with the probability set at  $p < .05$ . There were 2 other items that showed positive directions with improvements for the service-learning students, but their significance was at  $p < .07$ .
- As reported on the LASSIE forms, ten sites had students who had a low level of an average of 26.8 hours of service. However, the remainder of the sub-grantee sites had students with 42 hours of service (moderate level) or the highest levels which averaged 70.3 hours of service. This finding means that the overall attitude change was limited by the intensity of participation at some sites. Teachers will be encouraged in the last year of the project to use service-learning methods that allow students to accumulate on average, 40-50 hours of service per semester.
- At three sites academic behavior records were collected as a pilot research strategy. The following findings show trends, but larger samples of matched students would be needed to demonstrate statistical findings. Overall grade point averages were collected on a sample of 59 students in the year before they entered service-learning (June, 2007), and 60 students at the end of service-learning (June, 2008). Only 20 comparison student records for GPA were available for the 2007 baseline year and 23 in June, 2008. There was a 9% increase in GPA for the service-learning students and a 1% increase for the comparison students. In year three, other sites have promised to collect this data and hopefully it will show a positive and significant improvement associated with service-learning participation.
- Out-of-school suspensions showed decreases over the same time periods with a 44% decline for service-learning students and a 75% decline for the comparison students. The sample numbers were small, and the trend shows better improvement for the comparison students. Next year's sample should be a better test for the relationship of service-learning and out-of-school suspensions.
- In-school suspensions had a small sample as well. There was an 82% decline in these suspension events for the service-learning students and a 53% decline for the comparison students. A larger sample of

students in both groups next year should reveal the relationship between service-learning and the decline for in-school suspensions.

- The last behavior record set was student absences from school. The service-learning students had a 57% decline from 2007 to 2008, and the comparison group had a 29% decline in days absent over the same time period. The days absent decline over time needs to be confirmed next year.
- These very preliminary findings follow some of the results of a larger sample of students (N=558 service-learning students and 121 comparison students) measured in 2004-2005 in Tennessee. In this study, “Re-engaging suspended students in Tennessee: Longitudinal benefits from service-learning,” all four of these measures showed significant academic and behavioral impact associated with service-learning (see the abstract of findings from the International Research Symposium on Service-learning, Tampa, Florida, October, 2007 or contact Volunteer Tennessee).

Project presentations by site coordinators in May, 2008 revealed that in 2007-2008, many student efforts at the sub-grantee sites had interesting impacts on communities by working with Lions Clubs or other clubs/agencies to provide medical screening. Students in other sites wrote and collected materials to military persons based abroad, and at other sites students tutored elementary students and helped at elementary schools’ family reading nights.

## **NARRATIVE REPORT FOR 2007-2008**

### **Learn and Serve service-learning strategies and student groups**

Local Tennessee school districts educators applied for and were selected for the Learn and Serve program and given mini-grants from the Tennessee Department of Education. Grant funds were used for teacher training fees and for materials used in service-learning projects. Then, these local educators (called the Tennessee Learn and Serve sub-grantees group) attended workshops where expert trainers in service-learning taught them principles of high quality service-learning. After this training, teachers merged academic content and standards of subject areas with service-learning concepts. Teachers were often the guides as students planned, participated, reflected and demonstrated service. Using the four elements of the service-learning pedagogical cycle (Step 1 --Planning the service project and doing needs assessments, Step 2-- the Action or Service activities, Step 3 --using Reflection methods, and Step 4--the Demonstration and Celebration of skills), teachers and students had opportunities to apply in-class knowledge to real world applications. Some of these projects benefited the community beyond the school, such as when these participating students used essential civic responsibility skills and took steps to becoming effective citizens by:

- learning to communicate *in democratic ways*,
- *voting and prioritizing* community needs,
- motivating themselves and others into *social action*,
- *exhibiting* responsibility for action and behavior, and
- *Communicating* effectively with community members.

The service-learning projects met genuine community needs, and were often planned in partnership with community-based and faith-based organizations. Most of the educators in Tennessee on these grant programs used the Lions-Quest *Skills for Action* curriculum to support the learning activities as they planned activities with students.

## Service-learning Projects

The 2008 LASSIE Report contains a brief description of at least one project for the sub-grantee sites, so each will not be detailed in this report. A few overall comments can be stated. Several sites expanded their use of the preparation step of the service-learning cycle. For example in Jefferson County, students brainstormed project ideas and then invited speakers from community agencies to present to the class their needs for student help. Students also visited the community sites before making decisions on committing time and effort to the projects.

In the action part of the cycle, students in Henry County, Knox, Oneida and other counties often gave service to multiple projects. There were 102,045 hours of service-learning given by students across the school-based sites in Tennessee. In terms of community partners, there were 180 in the 2007-2008 year. Staff often gave planning help to students or they attended events associated with the projects. In addition to the students in classes using service-learning teaching methods, other youth and adult volunteers helped work on the service-learning projects. There were 527 youth volunteers and 428 adults who helped the service learners in Tennessee in 2007-2008. Many students and teachers learned new work and technology skills as they organized and presented designs or results related to service-learning. Some student presentations included computerized slide shows and DVD's to give a colorful display to their accomplishments and these were shared in the May, 2008 Symposium with other educators in the state.

Part 1 of this report (pages 1-30) examines the results for attitude survey for high school, middle and elementary students and Part 2 describes a pilot study of behavior changes for high school students (pages 31-40).

### Research Methods: Student Attitude Survey for middle and high school students

The evaluator created a quasi-experimental design (pre and post measures with experimental and comparison groups) to measure the attitude and projected behavior impact from service-learning students in the Tennessee school sites. Students were given pre surveys called the *Pre/Post Resiliency Survey, Tennessee Department of Education and Volunteer Tennessee, Learn and Serve Secondary Survey (Grades 6-12)*. This survey contains student attitude questions about how connected they feel to educators, peers, and their school, their perception of their own resiliency and ability to deal with problems, conflicts and goals, attitudes about civic responsibility and helping others, attitudes about their perceptions of their abilities and talents, and lifestyle questions about how they spend their time out of school. It has been used in several states as a measure of some of the impacts associated with service-learning participation (see Appendix A for a copy of this survey.)

Students took the pre survey in the fall of 2007 if they were in a full year service-learning program. If they enrolled in a traditional subject area where service-learning was integrated for a semester, they took the pre survey in September or January. At the end of the semester or year of service-learning participation, each student took an identical survey version as a post-survey. On the cover sheet page of the survey, students printed and signed and dated the form. Comparison students were chosen from classrooms in the same school or a nearby building where the students were at the same ability level but were not participating in service-learning in 2007-2008.

On the top of the first survey page, after students provided the school name, their grade and gender, students were asked to provide the first four letters of their last name. This four letter identifier was used to link pre surveys to post surveys (as well as names listed on the cover page). As the final background item students were asked if they had ever taken a service-learning class/project. This service-learning question was a way to identify "valid" cases, students new to service-learning as compared to experienced students.

The core part of the survey contained 32 attitude survey items on page one of the survey. The first series of survey statements were 32 items that measured: a) **students' connectedness to school** (e.g. "People at this school want me to do my best."), b) **civic responsibility** (e.g. "I feel like I am part of a community" or "I plan to vote

when I am older.”), or c) **perceptions about their talents and strengths and indicators of resiliency** (e.g. “I can accept criticism about my behavior,” or “I am confident about my skills”). The first 32 items on the survey were presented as statements and the student could choose an appropriate response from a Likert-type series: “Strongly Agree,” “Agree,” “Not Sure,” “Disagree” or “Strongly Disagree.” Students’ answers were numerically encoded to help with statistical analyses. Students who chose the highest agreement answer (“strongly agree”) were coded as 5’s, and those who chose an “Agree” answer were given 4’s. Those students who answered “Not sure” were coded as 3’s, the “Disagree” responses were coded as 2’s, and “Strongly Disagree” responses were coded as 1’s.

On the second page of the survey, items 33-35, were questions about how students spent their leisure time and their behavior (e.g. television watching, doing homework, or volunteering for community service). Students’ responses on these items were encoded as “no time at all,” “less than 1 hour,” “1-2 hours,” “3-4 hours,” “6-10 hours” and for some questions, “11 or more hours.” These responses were numerically encoded as well.

Other lifestyle questions, items 36-41, asked students about other leisure time--those hours spent doing volunteer work, in music programs, playing sports, participating in clubs, worship, or community groups. Responses were encoded with the same numerical methods. The last six items on the survey asked students about their use of alcohol and marijuana (these items were not included for students in Memphis, because the school district needs parental permission for sensitive survey items). Students could report zero or no use of substance, 1-2 times, 3-5 times, 6-9 times, and 10 or more times for the last 30 days and lifetime use. The complete survey for students contained 47 items, and for students in the Memphis Public School sites, there were 41 survey items.

After the surveys were administered and collected by the teachers they were mailed to the evaluator. After the evaluator cleaned the surveys for unreliable answers (about 2% of students provided 7 or more answers on the pretest with the same response code in a column or they made patterns of answers in diagonal shapes, or they did not complete the form), students’ responses to each statement were encoded numerically into a statistical program.

Each classroom of linked pre and post surveys was analyzed, with percentages and statistical means for each attitude item and overall averages for all the statements and gain scores. The full list of classrooms for both service-learning students and comparison students can be found in Appendix B (Tennessee Learn and Serve 2007-2008 Site Lists).

### **The Elementary Survey**

Students in grades K-5 took a much shorter survey, the *Resiliency Survey, Tennessee Department of Education, Learn and Serve Elementary Survey*. The first page asked for the students name, signature, and date. The one page list of statements and questions contained 24 attitude statements and one question about hours watching television. Students also provided answers to their grade level, gender, and previous experience in service-learning. More information about the survey items will be included in the discussion of Table 3, an Item Means Table (see Appendix A for the elementary survey).

### **Valid Cases Partitioning of the Data Set**

The original data set contained some students who were experienced in service-learning before the 2007-2008 school year. These students had higher pre survey scores since they had knowledge and attitude carryover from a previous program. After statistical information revealed that experienced students had higher pre survey scores, the original data set was altered by “cleaning” the experienced students out of the data file. The rest of this narrative will discuss the service-learning results with the “valid case” sub-file. An example of the importance of using valid cases can be shown through the results on one survey item answered by students in Memphis at the Ida B. Wells Academy, an at-risk middle school. On item #13, “I think I can make a difference at school”, using all the students in the classroom, some who had previous service-learning experience and some students new to

service-learning, the item mean of positive responses at pre survey was 3.86. (A mean of 4.0 would mean that most students agree with the statement.)

However, by refining the classroom data set to those students new to service-learning, the pre survey mean was 3.53 and this mean is closer to “Not sure” responses. The higher mean scores with experienced students suggest that there was a statistical carryover effect of service-learning from the previous year. Using the valid cases data set is a research method that shows how much a student new to service-learning felt before the program began and then on the post survey. Also, and more likely, the validity of the sample was at risk when some comparison students claimed to be experienced in service-learning. These students were removed from the valid cases data set.

The Site Lists containing classroom –level data can be found in Appendix B. These data file sets were so dense to read that this individual site-level data will not be discussed and the narrative to follow will continue with overall results across all sites. Just a few notes will be made about how to read the Tennessee site lists. They are divided into high school, middle, and elementary lists and each of these contain the grouping of students into experimental and comparison groups. In the Site Lists in Appendix B the reader can find counties, school names, the classroom teachers’ names, and batch numbers to denote when the student data arrived and its coded link to post survey data. The number of students in each classroom and their pre and post survey statistical means and gain scores were also noted. Memphis schools were listed after schools in other parts of Tennessee because the post surveys arrived later in June. These classrooms were given different batch numbers to ease linking of pre and post surveys and to distinguish them from other sites in Tennessee.

### **Results from the Tennessee Learn and Serve Resiliency Survey for students in high school or alternative school sites**

The data set used for these analyses contained two student groups. Half of the students were referred to in the tables/charts as experimental students because they participated in the service-learning intervention. The other half of the students surveyed were in comparison classrooms where teachers did not use service-learning methods, and data from these students will be found in the following charts labeled as the comparison group. This year 2% of the surveys were not used because students did not complete the entire form, or when the results indicated students were answering in invalid ways (using one response code for all answers).

**Table 1** on page 8 contains the full set of pre and post averages from the student responses for all middle and high school students who met the criteria for valid cases (new to service-learning). At pretest, there were 986 experimental Learn and Serve students (see the maximum number in the third column on the left side of the table (with the heading # Students) and 942 Learn and Serve students finished the post-survey (see the fifth column on the left side with a heading # Students). The comparison group to the Learn and Serve students (see the figures on the right half of the page) had a maximum of 874 students at pre-survey, and 749 students completed the post-survey.

**Table 1** also contains the results for the pre survey scores, post survey scores, and the gain in scores for each item on the survey. The *first column* in Table 1 presents the *question number of the survey* (see Appendix A to read each survey item). For example, item #1 was, “My classmates are friendly.” The *second column*, labeled *Pre Exp. Mean*, contains the pre-survey statistical mean of 3.94 for the Learn and Serve experimental student group. This result could be interpreted as demonstrating that **most students at the pretest agreed** (3.94 is close to a score of 4) **that their classmates were friendly**. The *next column*, 3, shows the number of students answering that question on the pretest, and for item #1 this was 986.

The post survey mean on question #1 for the experimental (Learn and Serve) students can be found in *column four* and it was 3.95, or a slightly higher student agreement figure about the friendliness of classmates after the participation in service-learning than what was found at pre survey. The *fifth column* contains the number of students answering item #1 on the post survey and that was 942. The difference between the post-survey mean for experimental students, 3.95, minus the pre survey mean, 3.94, can be found in *column six*, .01, under the column labeled “Gain Score.” The gain score numbers in black ink in this column show that students were more positive after the course was over, and those gain scores in **red ink** show declines in positive attitudes.

The comparison group’s students, usually in the same school building, were same grade-level peers and were not participating in a service-learning course. These comparison students took the surveys within the same week as the experimental students. The results of their answers to each survey item can be found in the data results in the last five columns or the right half of Table 1. For example, on question #1 about the friendliness of classmates, the statistical pre survey mean, called the *Pre Comp. Mean*, was 3.92 (insignificantly different from the 3.94 of the experimental group). This mean indicates the average response was “agree” for this item for the 874 comparison students responding to the statement, “My classmates are friendly.” The post survey mean for the comparison group was 3.90, or just barely lower than the pre survey agreement level, and this led to a negative score in the gain score column (**-02**). The slight decrease from pre survey to post survey mean in the comparison group was not significant.

A quick inspection of the overall attitude results from items 1-32 shows that the average gain for the experimental group was .10 (see the numbers under column six on the left side of Table 1). This result shows there was a modest increase from pre survey to post survey across the first 32 survey items for the students involved in service-learning. The comparison group’s students had an average decrease of **-02**. Given the large data set a comparison of the means across the groups showed the overall differences in these two groups average mean scores to be significant at  $p < .05$ . The inference would be that students without service-learning participation had no growth in attitudes about school, their community or their own problem-solving and resiliency abilities, whereas the student participating in service did.

However, beyond the simple pre to post growth within a group of students, there could be a program impact if students participating in service-learning maintained a high but unchanging level of positive attitude, at the same time on the same attitude where there was a pre to post decline in the comparison group (this is called a **between group analysis**). More sophisticated tests of significance, analyses of covariance, were used to confirm the findings. These advanced significance tests were done to rule out whether the attitude changes on each item were due to luck or chance and not the influence of service-learning. The following lists of items show the attitudes that were confirmed by analyses of covariance.



**Table 1**  
**Student Attitude and Projected Behavior Surveys**

**Tennessee Learn and Serve Data for Each Group: Item Means**  
**Other Tennessee and Memphis Tennessee Combined**  
**Year 2007-2008 - Totals for High School Students - Valid Cases**

Quest #	Pre Exp Mean	# Students	Post Exp Mean	# Students	Gain Score	Pre Comp Mean	# Students	Post Comp Mean	# Students	Gain Score
1	3.94	986	3.95	942	0.01	3.92	874	3.90	748	-0.02
2	3.71	985	3.78	942	0.07	3.69	874	3.66	749	-0.03
3	3.40	986	3.47	942	0.07	3.42	874	3.33	749	-0.09
4	3.88	985	3.91	942	0.03	3.83	874	3.89	749	0.06
5	3.53	986	3.66	942	0.13	3.51	874	3.44	749	-0.07
6	3.86	986	3.87	942	0.01	3.81	874	3.92	749	0.11
7	3.44	986	3.69	942	0.25	3.39	874	3.59	749	0.20
8	4.08	985	4.09	942	0.01	4.02	874	4.08	749	0.06
9	3.34	986	3.40	942	0.06	3.37	874	3.30	749	-0.07
10	3.62	986	3.57	942	-0.05	3.64	873	3.65	749	0.01
11	3.79	986	3.92	942	0.13	3.89	873	3.78	748	-0.11
12	4.26	986	4.22	942	-0.04	4.24	874	4.20	749	-0.04
13	3.56	986	3.76	942	0.20	3.58	874	3.52	749	-0.06
14	4.20	986	4.24	941	0.04	4.23	874	4.16	749	-0.07
15	3.58	986	3.75	942	0.17	3.61	874	3.54	749	-0.07
16	4.25	986	4.32	942	0.07	4.21	874	4.28	748	0.07
17	3.86	986	3.98	942	0.12	3.82	874	3.87	749	0.05
18	4.33	986	4.45	942	0.12	4.49	874	4.40	749	-0.09
19	4.00	986	4.14	942	0.14	4.14	873	3.98	748	-0.16
20	4.10	986	4.17	942	0.07	4.23	874	4.19	747	-0.04
21	3.82	986	3.96	942	0.14	3.88	874	3.78	749	-0.10
22	3.40	986	3.47	942	0.07	3.39	874	3.30	749	-0.09
23	4.61	986	4.65	941	0.04	4.67	874	4.65	749	-0.02
24	3.88	986	3.95	942	0.07	4.03	874	3.94	749	-0.09
25	4.03	986	4.03	942	0.00	4.05	874	4.12	749	0.07
26	3.76	986	3.89	942	0.13	3.84	874	3.79	748	-0.05
27	4.04	986	4.18	942	0.14	4.11	874	4.09	749	-0.02
28	3.72	986	3.91	942	0.19	3.77	874	3.74	749	-0.03
29	4.12	986	4.26	942	0.14	4.19	874	4.12	749	-0.07
30	3.63	986	3.77	942	0.14	3.69	874	3.62	749	-0.07
31	4.01	986	4.20	942	0.19	4.06	872	4.18	749	0.12
32	4.00	986	4.19	942	0.19	3.96	873	4.03	749	0.07
Average	3.87	986	3.96	942	0.10	3.90	874	3.88	749	-0.02

Avg Gain      0.10

Avg Gain      -0.02

Quest #	Pre Exp Mean	# Students	Post Exp Mean	# Students	Gain Score	Pre Comp Mean	# Students	Post Comp Mean	# Students	Gain Score
33	1.20	984	1.25	941	0.05	1.41	874	1.18	749	-0.23
34	2.26	986	2.29	942	0.03	2.19	874	2.10	749	-0.09
35	1.40	986	1.58	942	0.18	1.28	874	1.69	748	0.41
36	0.81	986	1.11	941	0.30	0.71	874	0.94	748	0.23
37	0.59	986	0.59	942	0.00	0.62	874	0.66	749	0.04
38	1.34	986	1.17	941	-0.17	1.36	874	1.29	749	-0.07
39	0.70	986	0.87	942	0.17	0.70	874	0.92	749	0.22
40	1.47	986	1.48	942	0.01	1.45	874	1.60	749	0.15
41	0.45	986	0.55	942	0.10	0.41	874	0.68	749	0.27
42	0.87	770	0.90	716	0.03	0.79	654	0.98	621	0.19
43	0.44	770	0.38	716	-0.06	0.37	654	0.50	621	0.13
44	2.16	770	2.16	716	0.00	2.08	655	2.20	621	0.12
45	0.98	770	1.06	716	0.08	0.62	655	0.78	620	0.16
46	0.39	769	0.36	716	-0.03	0.24	655	0.30	621	0.06
47	1.99	770	2.02	716	0.03	1.78	655	1.91	621	0.13
Average	1.14	899	1.18	851	0.05	1.07	786	1.18	698	0.11

Avg Gain      0.05

Avg Gain      0.11

## Specific Attitude Results for the Middle and High School Learn and Serve Students

The list of attitudes that showed program effect with statistical significance of  $p=.05$  or better were computed and are shown below. **Nine of the first 32 attitudes did show that students participating in service-learning had improved attitudes when comparing the experimental pre and post means to the comparison students**, and item #33, (a behavior item) showed that time spent on homework increased for the service-learning students and decreased for the comparison group's students. The ten items with significant improvement for the service-learning students are below.

### Learn and Serve Tennessee Valid Cases High School Findings: Significant Attitude Change Statements on the Student Resiliency Survey

- #11 The teachers at this school accept me for who I am.
- #13 I think I can make a difference at school.
- #15 I believe I can make a difference in my community.
- #18 I have several goals I want to achieve.
- #19 When I have a problem, I can solve it.
- #21 I have learned better ways to use my time at school.
- #28 I can accept criticism about my behavior.
- #29 I encourage my friends to do their best.
- #30 I accept the rules of this school.
- #33 During an average day, how many hours do you spend on homework?

The only significant finding for the comparison group's students was:

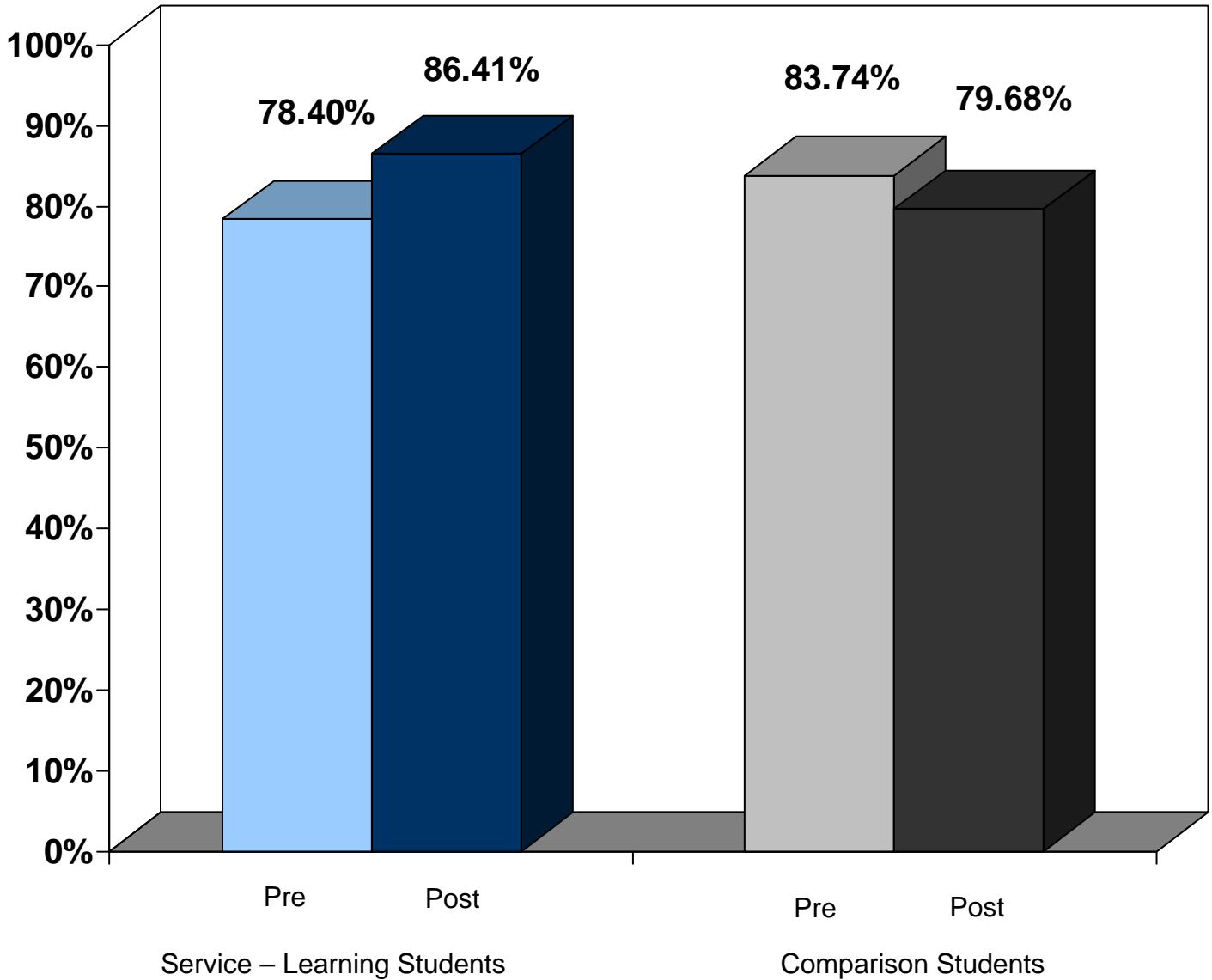
- #35 During an average day, how many hours do you spend working at a paid job?

The hours at a paid job may have been limited for the service-learning students if their projects took up time available after school. Working at a paid job can be seen as a challenge for service-learning students in the selected high schools in Tennessee since the comparison groups' hours working increased over time. **The survey items most sensitive to a program effect from service-learning participation were those related to students perceiving they gained problem solving skills or resiliency: #18, #19, #21, #28 and #30.** Items #13 and #15 show that **students felt they gained civic efficacy** or the ability to make a difference in their school or community. School connectedness is a concept that in other research studies which have shown that engaged and connected students do better in school. In this sample, **service-learning students felt more connected to persons at school** as shown by their improvements on items #11 and #29. **School performance** over time has a modest correlation in studies that measured the time students spent on homework and grades. Item #33 on the survey showed slight improvement for the service-learning participants and a significant decrease in homework hours for comparison group students. The survey items with the highest statistical relationship to improvement (when controlling for comparison student results) are displayed on the next 5 graphs.

**Graph 1** is on page 11. The top ranked attitude item showing improvement for the service-learning students is called the Top Strength in this report. This was survey item #19, “When I have a problem, I can solve it.” Graph 1 contains selected data from this analysis with presentations of just the “Agree” and “Strongly Agree” responses. **Service-learning students started out with a 78.40% agreement level and this rose to 86.41% by the end of the school year.** This shows that more students felt they could problem-solve after they participated on a service-learning project in May/June than they felt in September or before service-learning. The nature of the preparation and needs assessment parts of the service-learning model may have helped student improve their attitudes. In exact counts of just the strongly agree responses, 227 service-learning students strongly agreed at pre survey that they could problem-solve, but at post 315 students strongly agreed that they were problem-solvers. This was an actual increase of 88 service-learning students shifting answers up to the highest level after participation. Their peers in comparison groups with traditional classes and no service-learning, started the year with a belief they could problem-solve, with 83.74% agreement at pre survey, but at the end of the school year, the agreement decreased to 79.68%. The actual count of those comparison students choosing just the strongly agree responses was 265 students at pre survey and 213 at post survey, a decline of 52 students in the highest response category.

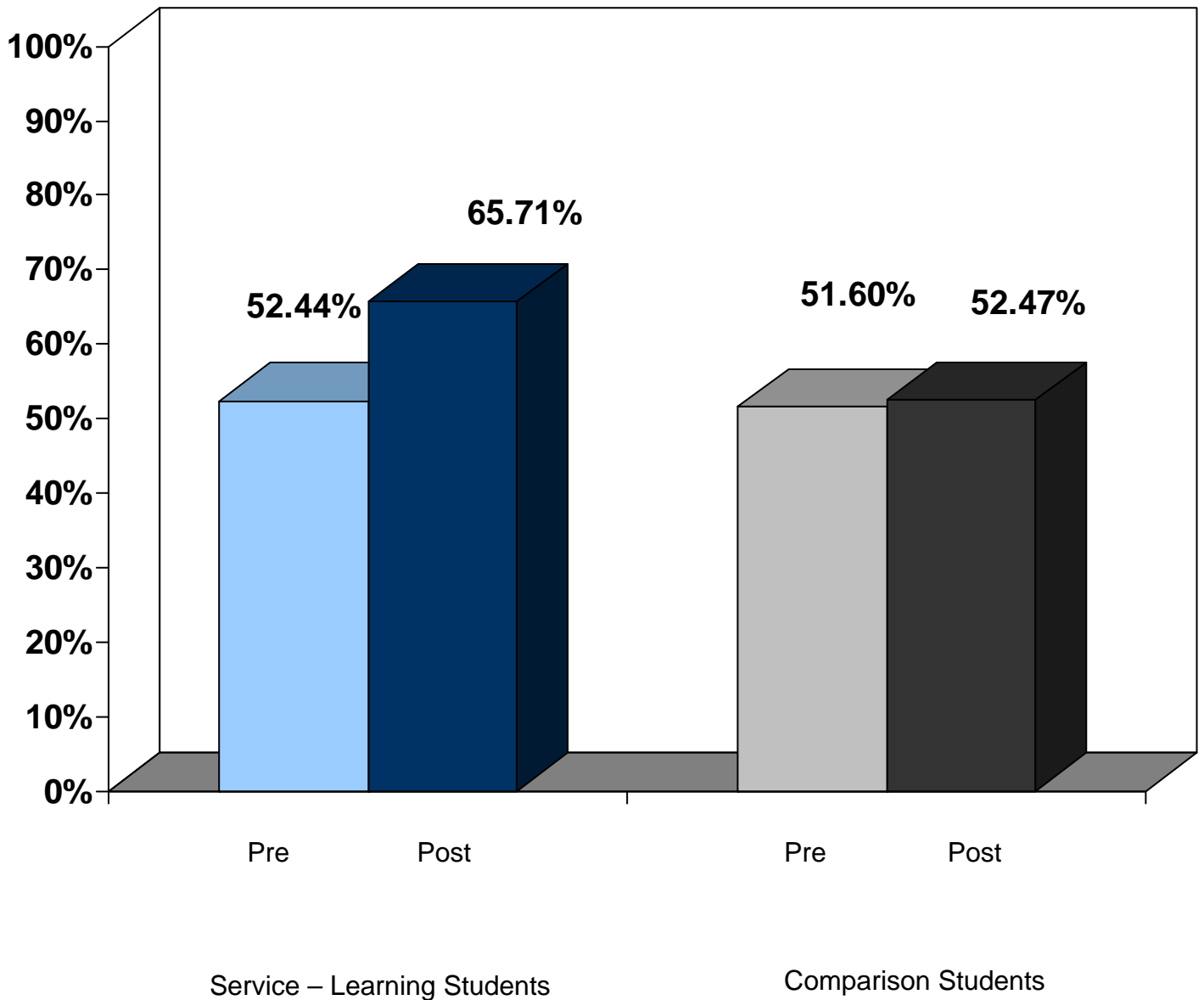
The **second highest strength** for the Tennessee Learn and Serve students was for item #13: “I think I can make a difference at school.” (See **Graph 2**). In this case, the pre-survey level for **the Learn and Serve students was 52.44% of students agreeing that they could make a difference, and at the post-survey this rose to 65.71%** of the Learn and Serve students agreeing or strongly agreeing that they could make a difference. The comparison students had no significant improvement in attitudes about making a difference, since they had a 51.60% agreement at pre-survey and 52.47% agreement at post-survey. The growth in the service-learning students on item #13 shows both a growth in civic efficacy, the empowerment about their abilities to change school problems, as well as it shows that these students were feeling connected to their school.

**Graph 1**  
**Tennessee Department of Education and Volunteer Tennessee**  
**High School Student Survey Data 2007-2008**  
**Top Strength Overall Data Result for Survey Item**  
**Q19: “When I have a problem, I can solve it.”**



\*Note: “Strongly agree” and “agree” responses were combined and displayed.

**Graph 2**  
**Tennessee Department of Education and Volunteer Tennessee**  
**High School Student Survey Data 2007-2008**  
**2<sup>nd</sup> Strength Overall Data Result for Survey Item**  
**Q13: "I think I can make a difference at school."**



\*Note: "Strongly agree" and "agree" responses were combined and displayed.

This was a remarkable improvement in the attitude about feeling empowered about making a difference at school, because other educational national research studies have found students' positive attitudes toward school decrease by the end of the school year (in national studies of attitudes, May or June attitudes are lower than to student attitudes reported September and October when there is no program).

The next **graph, 3** displays agreement answers to item #15: "I believe I can make a difference in my community." The service-learning students started at **54.97% agreement at pre survey**, and at post survey **about two-thirds agreed or strongly agreed that they could make a difference in their community (67.20%)**. Comparison students had no significant attitude change with a 54.21% agreement at pre survey and 53.93% at post survey. These findings show that service-learning students care about their community after participating in a service-learning project.

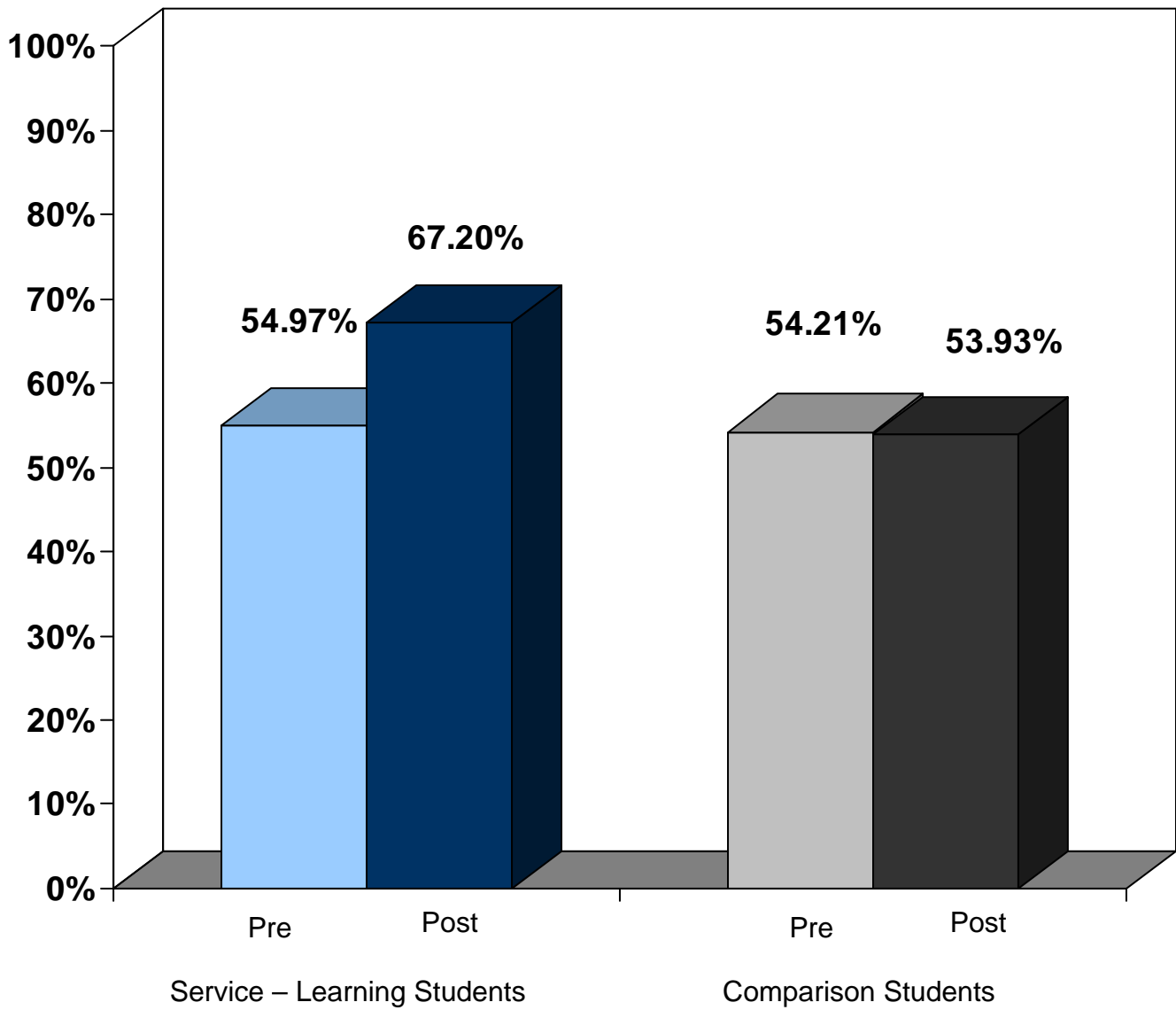
**Graph 4** displays the agreement responses for item #21: "I have learned better ways to use my time at school." **Students in service-learning classrooms had a 69.68% agreement to the statement at pre survey and rose to 79.08% agreement at post survey**. The comparison student figures show a slight decline in positive attitudes with a 72.08% agreement at pre survey and 68.36% at post survey. The project steps and learning focus of service-learning methods may have helped the service-learning participants feel they were managing time in school better.

**Graph 5** contains the results for item #11: "The teachers at this school accept me for who I am." The service-learning students started at **66.12% agreement at pre survey**, and at post survey **72.72% strongly agreed or agreed that they were accepted by their teachers**. The comparison group had no significant attitude change with a 66.20% agreement at pre survey and 64.31% at post survey. The inference from these results would be that acceptance by teachers improved for those students interacting with teachers as they performed service action in their communities.

In these Tennessee results for high school students, the comparison group showed declines in attitudes or no significant changes, except for working at a paid job. **These results suggest that service-learning students in high schools improved on perceiving themselves as purposeful, they problem-solved school and community problems during their service-learning projects, and they felt connected to teachers. Comparison students reported a higher level of hours working at a paid job by the end of 2007-2008.**

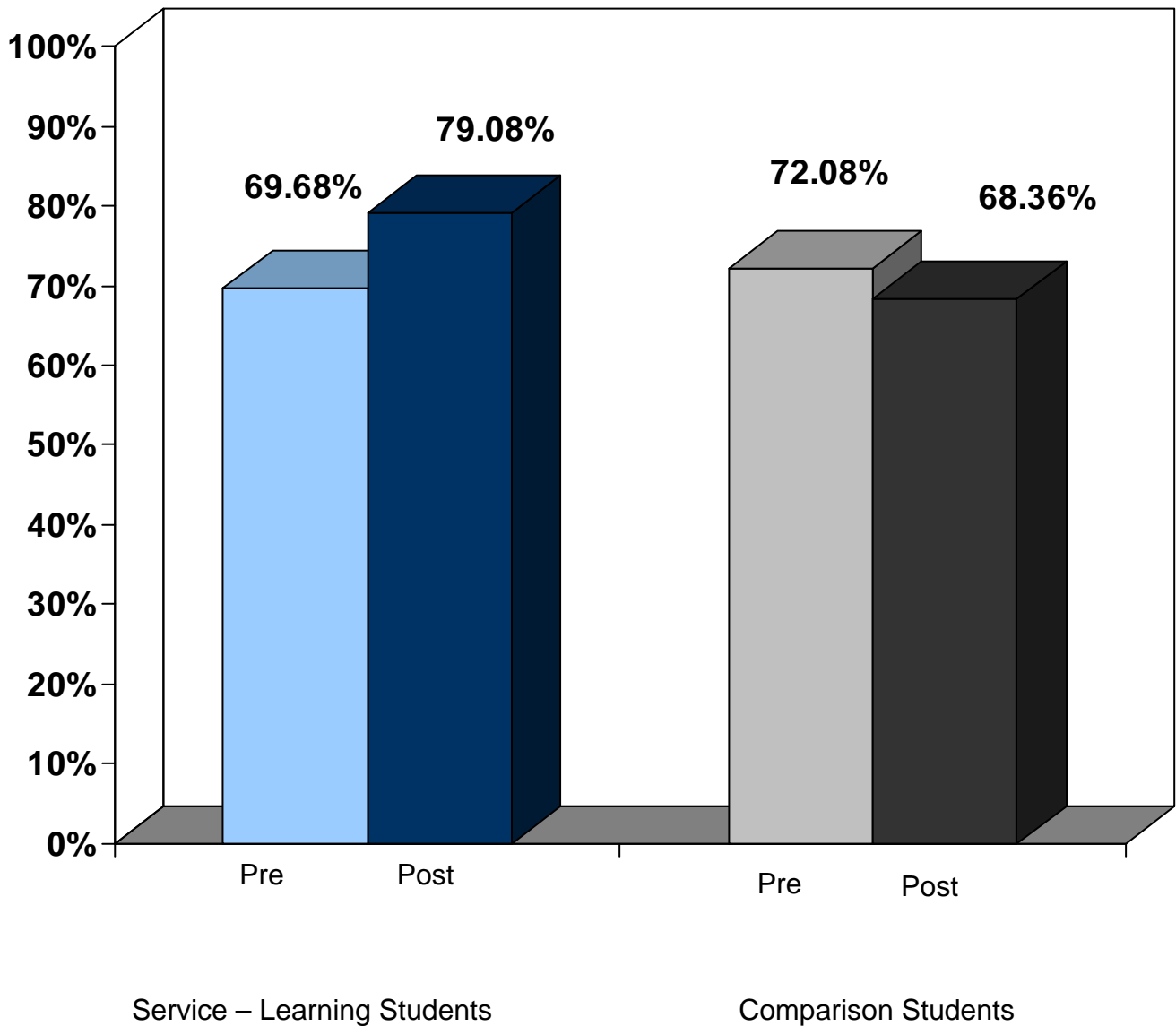
The attitude improvement for service-learning students may be seen as an increase in a "protective factor" that is related to the students engagement in their communities. Engaged students in other research studies have shown to be at a lower risk of getting into juvenile misbehavior (see M. Sayles, "Adolescents' purpose in life and engagement in risky behaviors differences by gender and ethnicity." A doctoral dissertation: University of North Carolina at Greensboro, 1994. See this in Dissertation Abstracts International, 55, 09A 2727.)

**Graph 3**  
**Tennessee Department of Education and Volunteer Tennessee**  
**High School Student Survey Data 2007-2008**  
**3<sup>rd</sup> Strength Overall Data Result for Survey Item**  
**Q15: "I believe I can make a difference in my community."**



\*Note: "Strongly agree" and "agree" responses were combined and displayed.

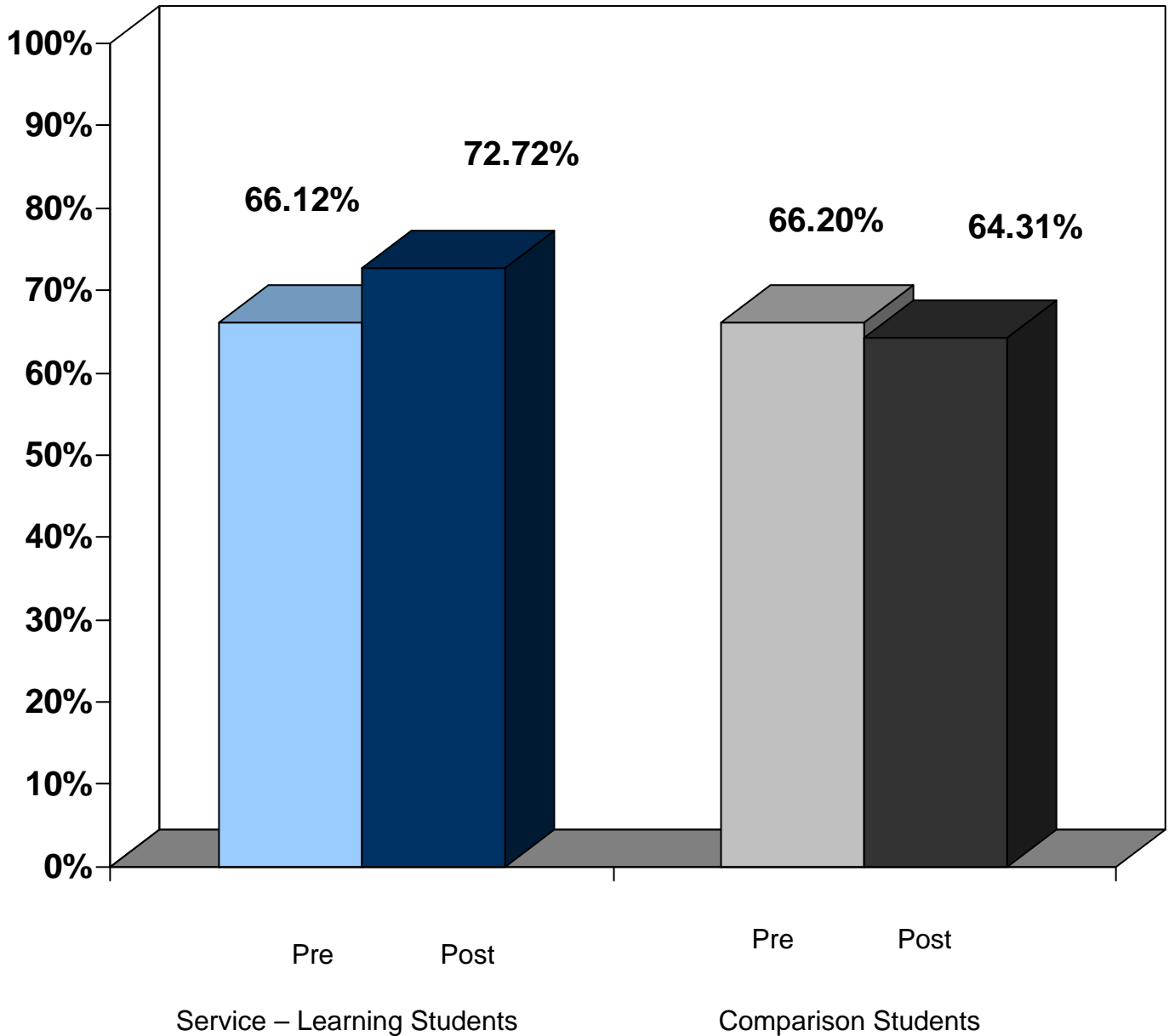
**Graph 4**  
**Tennessee Department of Education and Volunteer Tennessee**  
**High School Student Survey Data 2007-2008**  
**4<sup>th</sup> Strength Overall Data Result for Survey Item**  
**Q21: "I have learned better ways to use my time at school."**



\*Note: "Strongly agree" and "agree" responses were combined and displayed.



**Graph 5**  
**Tennessee Department of Education and Volunteer Tennessee**  
**High School Student Survey Data 2007-2008**  
**5<sup>th</sup> Strength Overall Data Result for Survey Item**  
**Q11: “The teachers at this school accept me for who I am.”**



\*Note: “Strongly agree” and “agree” responses were combined and displayed.

## Results from students in middle schools

The middle school students, in grades 6-8 or 5-8, took the same survey as the high school students up to item 41. Reviewing Table 2, the reader can see that there were 101 (3<sup>rd</sup> column) service-learning students at pre survey, and 93 of these students took the post survey (5<sup>th</sup> column). The gain score average across the first 32 items was .11 for the service-learning students (end of 6<sup>th</sup> column). There were 104 comparison students at pre survey, and 67 students completed the post survey (see the # of Students columns on the right half of the page). Comparison students had declining attitudes on most items as shown by the **red gain scores** for 28 of the first 32 attitude items. Their average gain score was **-0.17**.

**Table 2**  
**Student Attitude and Projected Behavior Surveys**  
**Tennessee Learn and Serve Data for Each Group: Item Means**  
**Other Tennessee and Memphis Tennessee Combined**  
**Year 2007-2008 - Totals for Middle School Students - Valid Cases**

Quest #	Pre Exp Mean	# Students	Post Exp Mean	# Students	Gain Score	Pre Comp Mean	# Students	Post Comp Mean	# Students	Gain Score	
1	3.45	101	3.80	93	0.35	3.43	104	3.24	67	-0.19	
2	3.86	101	3.76	93	-0.10	3.99	104	3.76	67	-0.23	
3	3.40	101	3.44	93	0.04	3.65	104	3.19	67	-0.46	
4	4.42	101	4.42	93	0.00	4.42	104	4.24	67	-0.18	
5	3.69	101	3.85	93	0.16	3.93	104	3.67	67	-0.26	
6	4.00	101	4.22	93	0.22	4.17	103	4.02	67	-0.15	
7	3.30	101	3.77	93	0.47	3.63	104	3.39	67	-0.24	
8	3.89	101	4.07	93	0.18	3.99	104	3.94	67	-0.05	
9	3.94	101	3.88	93	-0.06	3.77	104	3.75	67	-0.02	
10	3.90	101	4.17	93	0.27	4.07	104	3.87	67	-0.20	
11	3.95	101	4.25	93	0.30	4.29	104	3.93	67	-0.36	
12	4.26	101	4.64	93	0.38	4.50	104	4.57	67	0.07	
13	3.87	101	3.95	93	0.08	3.99	104	3.83	67	-0.16	
14	4.28	101	4.33	93	0.05	4.28	104	4.17	67	-0.11	
15	3.72	101	4.00	93	0.28	3.72	104	3.63	67	-0.09	
16	4.27	101	4.30	93	0.03	4.38	104	4.35	67	-0.03	
17	3.59	101	3.80	93	0.21	3.91	104	3.39	67	-0.52	
18	4.55	101	4.57	93	0.02	4.58	104	4.53	67	-0.05	
19	3.90	101	4.10	93	0.20	4.05	104	3.82	67	-0.23	
20	4.13	101	3.93	92	-0.20	4.07	104	3.89	67	-0.18	
21	4.11	101	4.24	93	0.13	4.26	104	3.77	67	-0.49	
22	3.68	101	3.54	93	-0.14	3.45	104	3.36	67	-0.09	
23	4.67	101	4.79	93	0.12	4.72	104	4.84	67	0.12	
24	3.85	101	3.97	93	0.12	4.00	104	3.76	67	-0.24	
25	4.10	101	4.09	93	-0.01	3.99	104	4.24	67	0.25	
26	3.98	101	3.78	93	-0.20	3.83	104	3.72	67	-0.11	
27	4.20	101	4.31	93	0.11	4.32	104	3.90	67	-0.42	
28	3.68	101	3.66	93	-0.02	3.93	104	3.63	67	-0.30	
29	3.96	101	4.13	93	0.17	3.98	104	3.83	67	-0.15	
30	4.05	101	3.91	93	-0.14	3.98	104	3.72	67	-0.26	
31	4.10	101	4.36	93	0.26	3.99	104	3.97	67	-0.02	
32	4.09	101	4.28	93	0.19	4.09	104	4.13	67	0.04	
Average	3.96	101	4.07	93	0.11	4.04	104	3.88	67	-0.17	
					Avg Gain	0.11				Avg Gain	-0.17
33	1.21	101	1.30	93	0.09	1.44	104	1.23	67	-0.21	
34	2.68	101	3.13	93	0.45	2.98	104	3.03	66	0.05	
35	1.52	101	1.20	93	-0.32	1.28	104	1.27	67	-0.01	
36	1.09	101	1.49	93	0.40	0.89	104	1.19	67	0.30	
37	1.26	101	1.43	93	0.17	0.92	104	1.03	67	0.11	
38	1.55	101	1.92	93	0.37	1.63	104	1.89	67	0.26	
39	0.75	101	0.91	93	0.16	0.76	104	0.70	67	-0.06	
40	1.62	101	2.21	93	0.59	1.85	104	1.74	67	-0.11	
41	0.95	101	0.87	93	-0.08	0.87	104	1.39	67	0.52	
Average	1.40	101	1.61	93	0.20	1.40	104	1.50	67	0.09	
					Avg Gain	0.20				Avg Gain	0.09

There was a significant overall effect for the first 32 items at the  $p < .05$  level indicating the middle school service-learning students did better than comparison students. Using statistical testing, (student t-tests of significance), each pre survey average for each item was compared to post survey item mean to see if there was a growth in positive attitudes for the Learn and Serve students. Items with small changes, .00 to .50, generally did not reach significance (the middle school surveys had smaller sample sizes than the high school set, so the degrees of freedom in statistical testing limited what could occur by chance). **Seven of the attitudes did show a simple one-way growth when comparing the pre survey experimental mean to the post survey for the experimental students.** Those items were #1, #7, #11, #12, #34, #38, and #40. Two of the statistical tests to measure pre survey to post survey growth in the comparison group reached significance: #36, and #41.

More sophisticated tests of significance, analyses of covariance, were run to see if the growth in the comparison group was similar or not from the experimental group. This was done to rule out whether these improvements in attitudes were due to luck or chance and not the influence of service-learning. Using the analyses of covariance revealed the **final list of 8 attitudes.** These items showed program effect relationship to service-learning participation and met the criterion of statistical significance of  $p < .05$  or better.

### **Learn and Serve Middle School Findings:**

#### **Significant Attitude Change Statements on the Student Resiliency Survey**

- #1 My classmates are friendly.
- #3 Adults at this school are easy to talk to.
- #7 Other people see me as a leader.
- #11 The teachers at this school accept me for who I am.
- #17 I can talk and present ideas to adults.
- #21 I have learned better ways to use my time at school.
- #27 I can follow through with a project.
- #40 During an average week, how many hours do you attend worship services?

The only significant finding for the comparison group's students was: #41, "During an average week, how many hours do you spend with clubs outside of school?" The only challenge for the service-learning students was their lower participation in clubs outside of school. These hours may have been limited for the service-learning students if their projects took up time available after school. **The items most sensitive to a program effect from service-learning participation were those related to service-learning students feeling more connected to persons at school and their community** as shown by their improvements on items: #1, #3, #11, and #40. The next highest group of findings showed that **students participating in service-learning projects also perceived they gained problem solving skills, or resiliency:** #17, #21, and #27. The service-learning students' improvement on Item # 7 shows that **students felt they gained civic efficacy or the ability to make a difference in their school or community as a leader.** The top three items with the most improvement when controlling for comparison student results are displayed on the next 3 graphs.

**Graph 6** shows the top ranked attitude to change, called the Top Strength, which was survey item #17, "I can talk and present ideas to adults." **Graph 6** contains selected data from this analysis with presentations of just the "Agree" and "Strongly Agree" responses. **Service-learning students started**

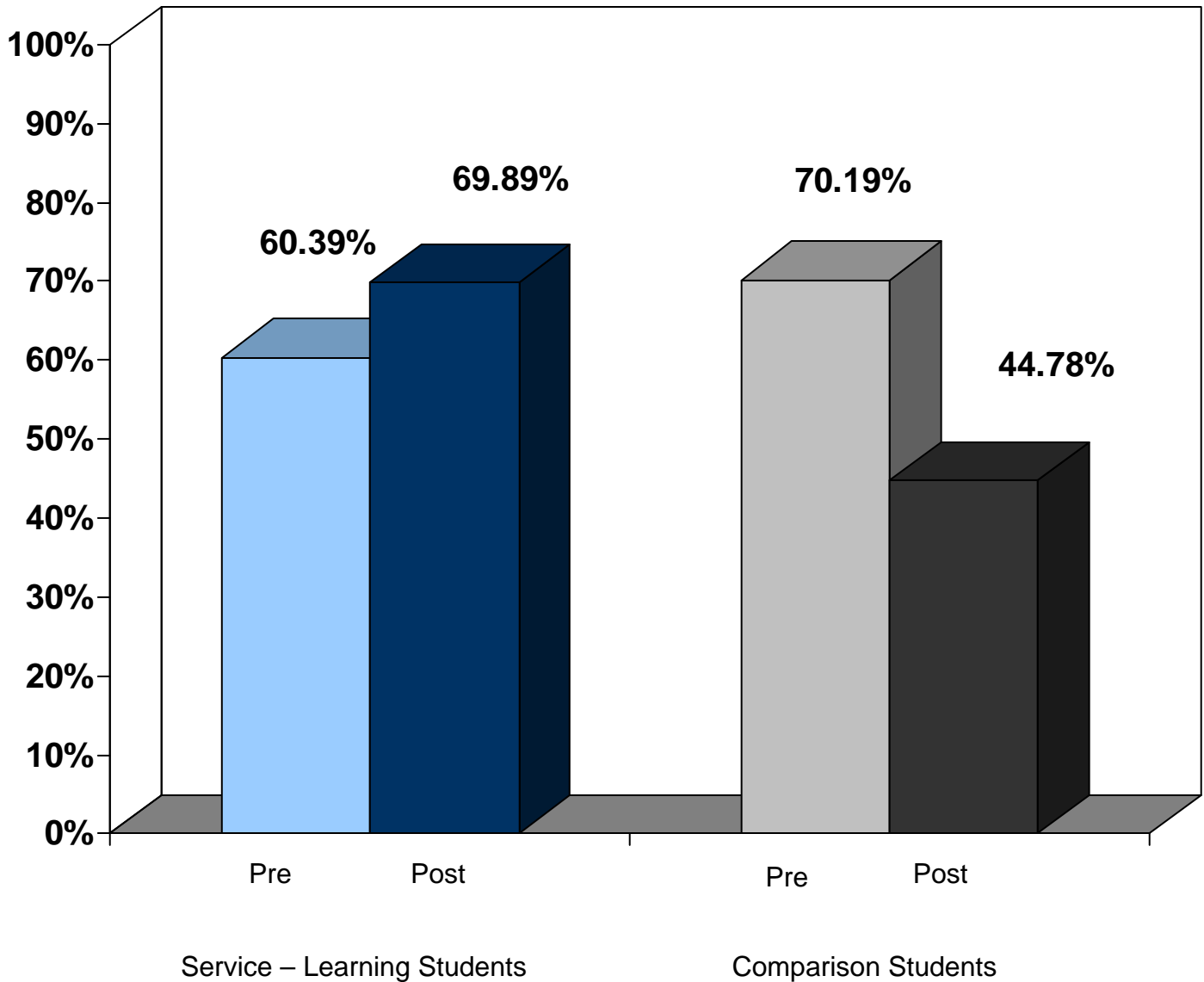
**At a 60.39% agreement level and this rose to 69.89% by the end of the school year.** This shows that more students felt they had better communication skills after they participated in a service-learning project by May/June than their feelings in September (or before service-learning). Their peers in comparison groups with traditional classes and no service-learning, started the year with a 70.19% agreement at pre survey, but at the end of the school year, the agreement decreased significantly to 44.78%. The inference from these results would be that the service-learning students got chances to practice communication and presentation skills while preparing and carrying out project tasks, and this helps their self-perception of these skills. Teens in comparison classes who do not have extra practice with communication skills may begin to doubt their abilities.

The **second highest strength** for the Tennessee Learn and Serve middle school students was for item #7, “Other people see me as a leader.” (**Graph 7**) In this case, the pre-survey level for **the Learn and Serve middle school students was only 35.64% of students agreeing that others perceived their leadership, and at the post-survey this rose to 61.29%** of the Learn and Serve students agreeing or strongly agreeing that they were seen as a leader. The comparison students’ attitudes had a significant decline in attitudes about other people seeing them as a leader, since they had a 51.93% agreement at pre-survey and 46.27% agreement at post-survey. The inference from these findings is that the growth in the service-learning students’ attitudes about leadership was influenced by their participation and leadership skill acquisition during service-learning project preparation and completion of goals.

The **third ranked strength** for the Tennessee Learn and Serve middle school students was for item #11, “Teachers at this school accept me for who I am.” (See **Graph 8**). In this case, the pre-survey level for **the Learn and Serve middle school students was 71.28% of students agreeing that teachers accepted them, and at the post-survey this rose to 81.72%**. The comparison students’ attitudes significantly declined in teacher perception attitudes with a 78.84% agreement at pre survey and 64.18% at post-survey. The inference from these findings is that the growth in the service-learning students’ attitudes about how teachers perceive them may be due to the interactive nature when brainstorming ideas about projects or when teachers see them in their roles on the service project. The next **graphic, number 9** shows students responses to the 4<sup>th</sup> ranked strength, item #21, “I have learned better ways to use my time at school. As can be seen in **Graphic 9, 79.20% of the experimental group knew ways to use their time at school at pre survey and 87.10% of the service-learning students agreed at post survey that they learned ways to better use their time.** The comparison students started out with high agreement about time use at pre survey with 82.69% of the students agreeing, but at post survey the agreement dropped to 68.66%. Perhaps traditional teaching methods are not helpful to time management by teens, and they need practice with real world projects to learn new methods of time management.

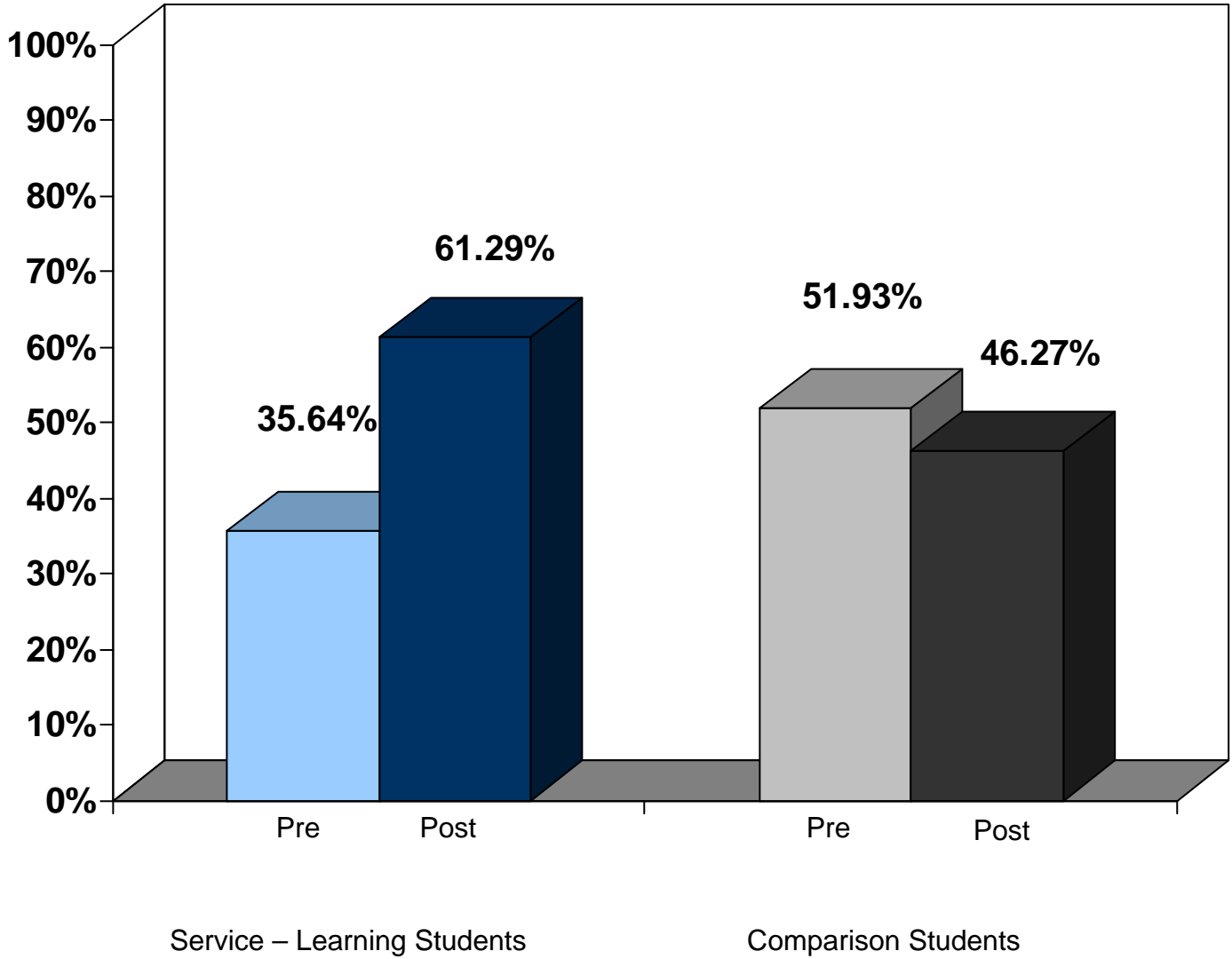
**In sum, there were strong attitude and skill changes as perceived by Tennessee middle and high school students who participated in service-learning. These changes were seen across key service-learning outcomes--school connectedness, problem solving and resiliency, and civic efficacy.** Since there were no attitude improvements for peers in similar grades in the same schools surveyed at the same time periods, the likelihood is that participation in Tennessee’s Learn and Serve programs at the various sites was effective in changing these important school and community engagement dimensions. Comparison students did improve on hours working at a paid job and hours in clubs outside of school.

**Graph 6**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Middle School Student Survey Data 2007-2008**  
**Top Strength Overall Data Result for Survey Item**  
**Q17: "I can talk and present ideas to adults."**



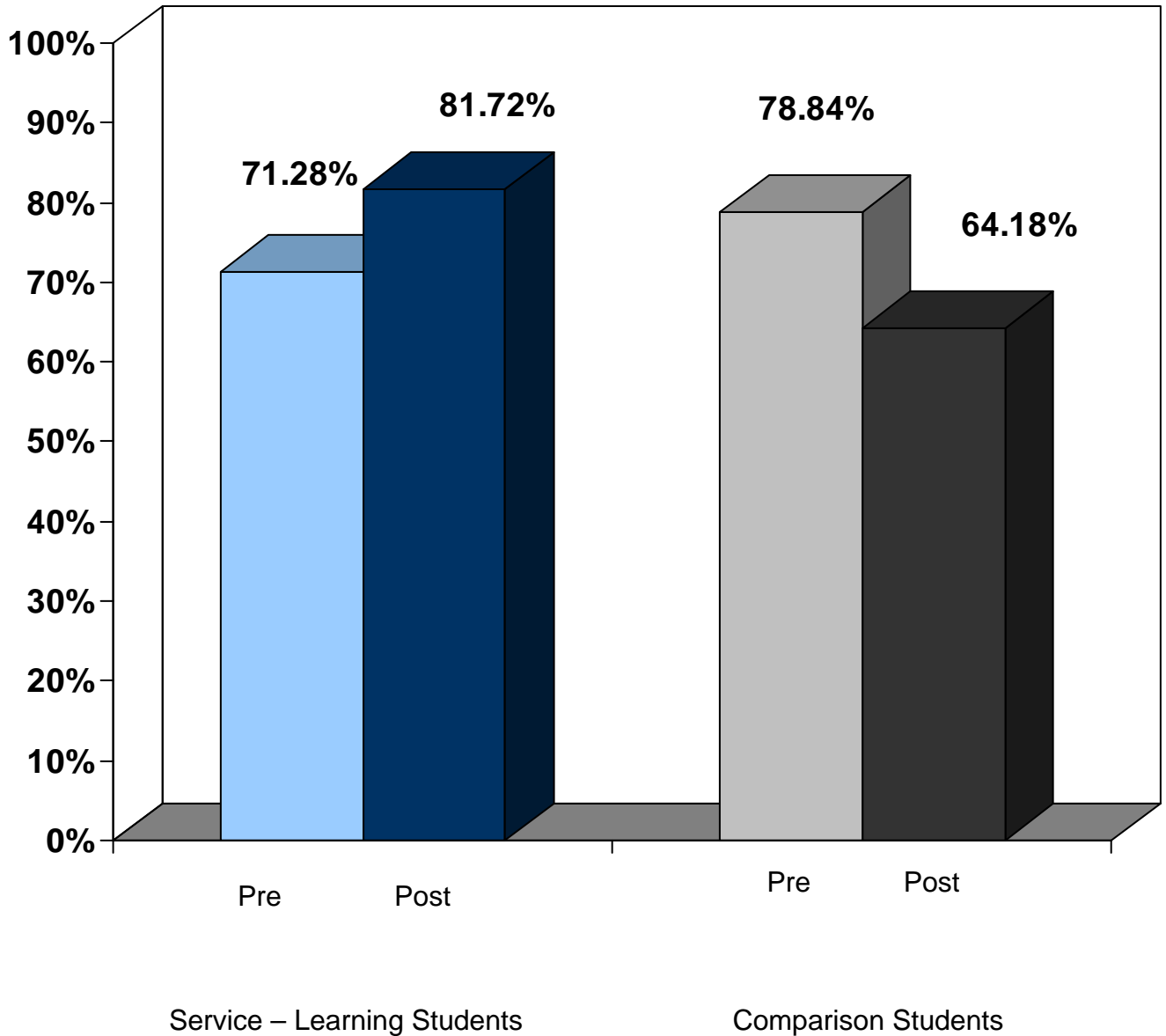
\*Note: "Strongly agree" and "agree" responses were combined and displayed.

**Graph 7**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Middle School Student Survey Data 2007-2008**  
**2<sup>nd</sup> Strength Overall Data Result for Survey Item**  
**Q7: "Other people see me as a leader."**



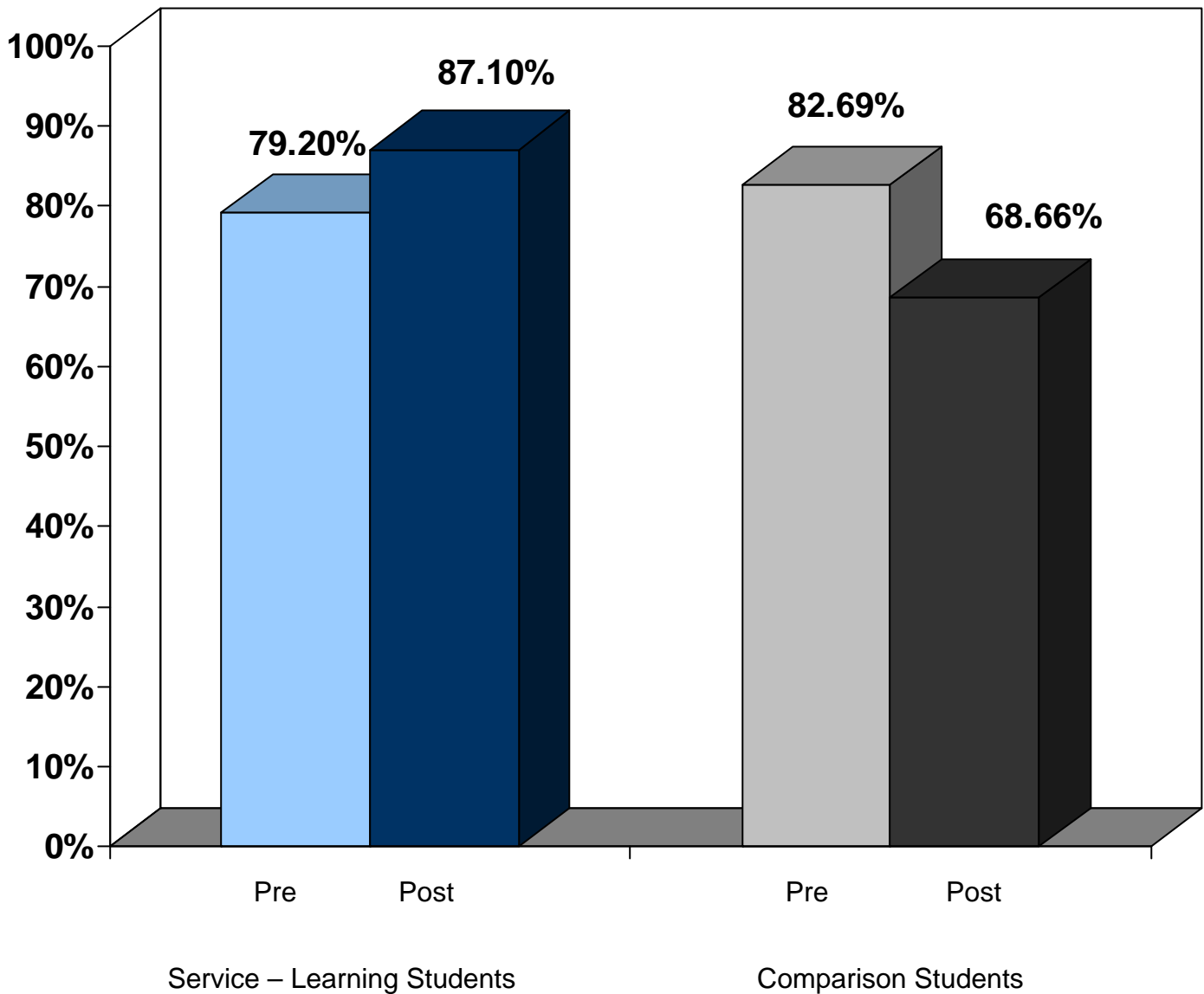
\*Note: "Strongly agree" and "agree" responses were combined and displayed.

**Graph 8**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Middle School Student Survey Data 2007-2008**  
**3<sup>rd</sup> Strength Overall Data Result for Survey Item**  
**Q11: “The teachers at this school accept me for who I am.”**



\*Note: “Strongly agree” and “agree” responses were combined and displayed.

**Graph 9**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Middle School Student Survey Data 2007-2008**  
**4<sup>th</sup> Strength Overall Data Result for Survey Item**  
**Q21: "I have learned better ways to use my time at school."**



\*Note: "Strongly agree" and "agree" responses were combined and displayed.



## Results from the Tennessee Elementary Students Survey

Each of the pre and post survey groups for elementary students were small in size, with the number of experimental students who completed the pre survey being 155, and at post 64 students completed the survey. They were matched with comparison students in nearby classrooms not using service-learning, and 100 comparison students completed the pre survey and 29 of these students provided post surveys. Only a few surveys were not used for unreliability reasons.

Elementary students answered a shorter survey of 24 attitude items (see Appendix A #2. for the *Tennessee Department of Education's Learn and Serve Elementary Survey*) similar to the Tennessee Department of Education's and Volunteer Tennessee's Survey used with the middle and high school students in the previous sections of this report. The factor dimensions on the elementary survey were similar to the high school form, but concepts, language and response choices were simplified.

In other earlier research, Dr. Laird, the evaluator, sent the elementary survey to experts, and the reading level was judged to be 3.4 or third grade, fourth month (Laird, Malinoff, and Black, 1997 and 2002). It has been used as a survey form in three states. For each statement (e.g. "My classmates are friendly") there were only three response codes: "yes," "no," and "maybe," instead of the five responses for older students. In general, a majority of elementary students responded with a "yes" to many items, but those who answered "maybe" or "no" might be unhappy about school. The assumption behind this research tool is that it is a sensitive survey revealing service-learning program where students often benefit from interventions such as the positive peer and adult interactions that occur with service-learning educational methods.

After the 24 survey items on the survey form with its three response choices, there is one lifestyle question, item #25, and it asks students to report on the number of hours of TV they watched after school on most nights. The response options were: "None" or Zero, "1-2 hours," "3-4 hours," "5-6 hours," and "7 or more hours" per night. The average hours for this item were analyzed separately from the 24 attitude items due to the different types of responses.

The item mean results and gain scores found in **Table 3** show that there was an overall gain across the 24 items of .10 for the elementary service-learning students, and **-.05** for the comparison students. This difference in overall means did not reach the acceptable probability level of  $p = <.05$ . Statistics showed the significance at the .07 significance level. This .07 level exceeds the usually accepted standard (a .05 or lower level) and may indicate that the findings were due to chance effects. However, the small size of the comparison group sample at post survey was a limiting factor for significance testing. As was the case for the last year, the pretest levels of the "yes" or best response to the attitude statements was high, with a mean of 2.52 out of a possible 3.00 for the experimental group (the reader can look down the second column on the left side of Table 2 to find the 2.52 average after question 24's mean). This 2.52 average converts to 84% of the service-learning students with a "yes" response average for the 24 items at pre survey. Comparison students were at 2.53 as a mean for the 24 items at pre survey or 84% agreement.

**Table 3**  
**Student Attitude and Projected Behavior Surveys**

**Tennessee Learn and Serve Data for Each Group: Item Means**  
**Other Tennessee and Memphis Tennessee Combined**  
**2007-2008 - Elementary Students - Valid Cases**

Quest #	Pre Exp Mean	# Students	Post Exp Mean	# Students	Gain Score	Pre Comp Mean	# Students	Post Comp Mean	# Students	Gain Score
1	2.43	155	2.33	64	-0.10	2.33	100	2.19	29	-0.14
2	2.77	155	2.65	64	-0.12	2.59	100	2.70	29	0.11
3	2.16	155	2.45	64	0.29	2.39	100	2.43	29	0.04
4	2.77	155	2.89	64	0.12	2.81	100	2.44	29	-0.37
5	2.46	155	2.59	64	0.13	2.45	100	2.46	29	0.01
6	2.46	155	2.66	64	0.20	2.23	100	2.55	29	0.32
7	2.28	155	2.57	64	0.29	2.38	100	2.43	29	0.05
8	2.64	155	2.69	64	0.05	2.43	100	2.41	29	-0.02
9	2.60	155	2.55	64	-0.05	2.48	100	2.63	29	0.15
10	2.67	155	2.69	64	0.02	2.63	100	2.20	29	-0.43
11	2.64	155	2.64	64	0.00	2.57	100	2.93	29	0.36
12	2.38	155	2.78	64	0.40	2.69	100	2.66	29	-0.03
13	2.31	155	2.42	64	0.11	2.49	100	2.44	29	-0.05
14	2.45	155	2.41	64	-0.04	2.43	100	2.23	29	-0.20
15	2.41	155	2.45	64	0.04	2.60	100	2.40	29	-0.20
16	2.43	155	2.67	64	0.24	2.78	100	2.17	29	-0.61
17	2.59	155	2.67	64	0.08	2.75	100	2.60	29	-0.15
18	2.39	155	2.61	64	0.22	2.27	100	2.39	29	0.12
19	2.63	155	2.76	64	0.13	2.71	100	2.43	29	-0.28
20	2.65	155	2.63	64	-0.02	2.65	100	2.65	29	0.00
21	2.72	155	2.74	64	0.02	2.68	100	2.71	29	0.03
22	2.59	155	2.80	64	0.21	2.71	100	2.40	29	-0.31
23	2.60	155	2.71	64	0.11	2.69	100	2.65	29	-0.04
24	2.36	155	2.44	64	0.08	2.01	100	2.35	29	0.34
<b>Average</b>	2.52	155	2.62	64	0.10	2.53	100	2.48	29	-0.05
				<b>Avg Gain</b>	0.10				<b>Avg Gain</b>	-0.05

Quest #	Pre Exp Mean	# Students	Post Exp Mean	# Students	Gain Score	Pre Comp Mean	# Students	Post Comp Mean	# Students	Gain Score
25	2.08	155	1.92	64	-0.16	2.02	100	2.35	29	0.33

Since so many students answered the positive answer at pretest, one might expect little change from pre survey to post survey. On the simple one-way ANOVAs of variance no items reached significance.

However, after controlling for the change in comparison group scores, which often decreased from pre to post survey, **four items (of the 24) reached significance at the  $p < .05$  level.**

The strengths that emerged were:

### **Top Strengths**

1. Q16: “When others talk, I wait my turn and listen.”
2. Q22: “I help other people.”
3. Q4: “People at this school want me to do my best.”
4. Q25: “How many hours of TV do you watch on most night?” (A decrease was the best response.)

These strengths are in different factors of resiliency, civic responsibility, and school connectedness. Two additional items appear to be positive trends in favor of the service-learning students (see below). These trends suggest that with a bigger sample size there might be an association with service-learning and these attitudes, however, these three results may have been due the chance effects. They were at the  $p < .06$  or  $p < .07$  levels and they were:

Item #10 “I know I have skills and abilities.”

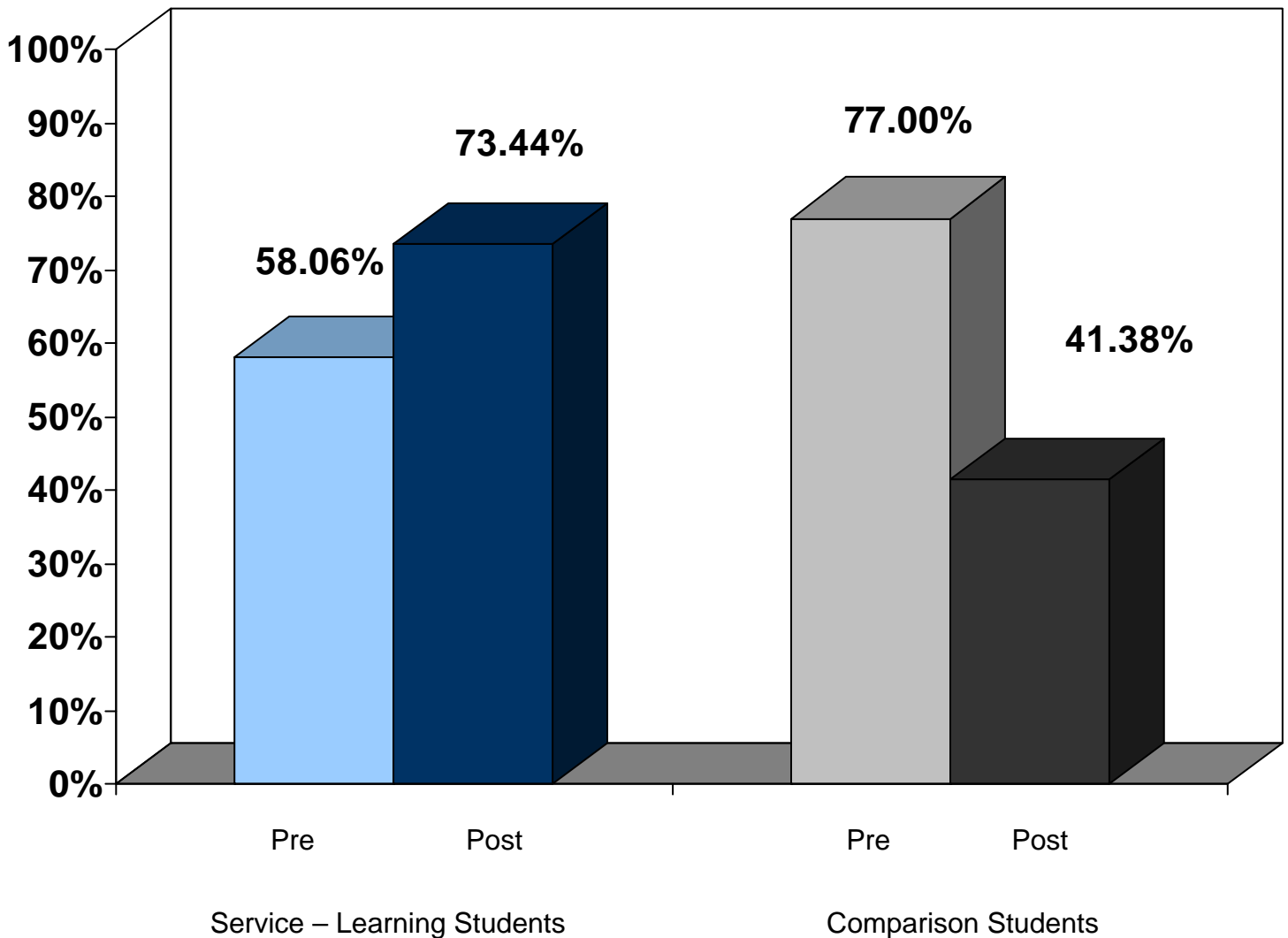
Item #12 “I am a responsible person.”

Perhaps, there will be more elementary students this year in the 2008-2009 dataset, and thus, an opportunity to confirm the two trends. For now, the results that meet research standards are for items #16, #22, and #4 and #25. The top two items were graphed to display the best findings. **Graph 10** displays the Top Strength, Item #16 for the Tennessee service-learning elementary students. Item #16 was, “When others talk, I wait my turn and listen.” The pre survey level for **the Learn and Serve students was 58.06% of students agreeing that they could demonstrate patience in responding to others, and at the post-survey this rose to 73.44%**. The comparison students’ attitudes had a significant decline in attitudes about patience in responding because they had a 77.00% agreement at pre-survey and 41.38% agreement at post-survey. The inference from these findings is that the growth in the service-learning students’ attitudes about their ability to self-manage responding during class participation was in part due to practice in this skill while participating in service-learning.

**Graph 11** displays the 2<sup>nd</sup> Ranked Strength for the Tennessee service-learning elementary students. This was item #22, “I help other people.” The pre survey level for **the Learn and Serve students showed that 64.52% of students agreeing that they could help others, and at the post-survey this rose to 76.56%**. The comparison students’ attitudes had a significant decline in the attitude helping others because they had a 77.00% agreement at pre-survey and 48.28% agreement at post-survey. The inference from these findings is that the growth in the service-learning students’ attitudes about their ability to help others was in part due to their practicing in this skill while participating in service-learning projects that gave help to others in their community. As a quick summary it can be said that the elementary survey items showed positive findings for the service-learning students and they align with three factors that were significant for the middle and high school students. That is for Q16, this elementary survey item shows the **resiliency** concept, Q22 is related to **civic responsibility concepts**, and Q4 is a **school connectedness** factor, and the significant decrease in TV watching is part of the

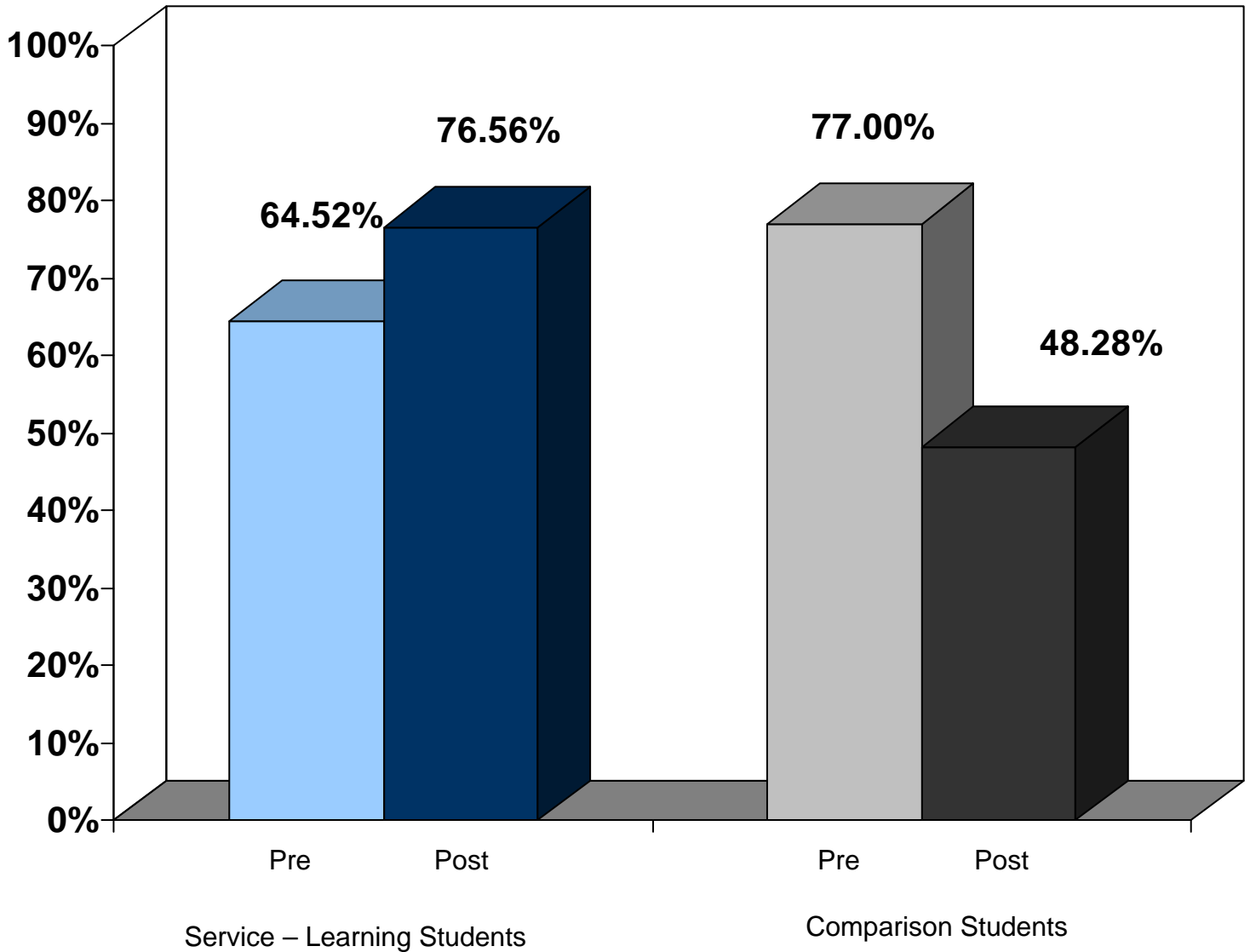
**school performance and resiliency factor.** In a modest way, some key outcomes for the study were confirmed in that service-learning elementary students had improvements on these factors.

**Graph 10**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Elementary Student Survey Data 2007-2008**  
**Top Strength Overall Data Result for Survey Item**  
**Q16: “When others talk, I wait my turn and listen.”**



\*Note: The figures on top of the bars represent only the “yes’ responses.

**Graph 11**  
**Tennessee Department of Education and Volunteer Tennessee**  
**Elementary Student Survey Data 2007-2008**  
**2<sup>nd</sup> Strength Overall Data Result for Survey Item**  
**Q22: "I help other people."**



\*Note: The figures on top of the bars represent only the "yes" responses.

In sum, for the 2007-2008 academic school year, there were modest attitude changes for the Learn and Serve students in the key outcomes measured by the Elementary Student Survey, but stronger results for the larger sample of middle and high school students participating in service-learning. Across the elementary, middle and high schools participating in service-learning in Tennessee, students had significant improvements in how connected they were to adults and peers at their school, they volunteered and began to show civic awareness and responsibility, and they increased their perceptions of their own social skills with improved problem-solving and ability to be resilient to stressors.

It may be that the bonding during cooperative service-learning activities among classroom peers and to the teacher may have influenced students to “like school”. Osterman (2000) found that academic attitudes were linked to students’ sense of community –where students who felt they belonged to the group, liked school more, and changed their motivation to achieve. Johnson et al., (1995) found that students who participated in cooperative learning and bonding activities developed better peer relationships. The National Longitudinal Study of Adolescent Health done by McNeely, Nonnemaker, and Blum (2003) found that participation in these activities was associated with higher school connectedness and less chance of dropping out.

### **Performance Measures: The two student intermediate outcomes for the grant**

The evaluator also calculated the number and percentage of service-learning students who increased on the major outcomes. In this second year of the grant, the intermediate outcome concerning problem-solving was close to being met. **The intermediate outcome goal for this year was that 45% of the service-learning students would improve on the measure of problem-solving (and 60% by year 3), and in actual percentages only 41.68% achieved this goal** (218 students of 523 matched students from pre to post survey increased their agreement to question 19, “When I have a problem, I can solve it”). By year three of the grant, this performance figure may be exceeded to 50% or so if teachers are able to increase program intensity, duration, and if they use the 9 components of a high quality service-learning. This aim was discussed with site coordinators at their meeting in September, 2008. **A second performance measure was the outcome target that 50% of service-learning participants would increase their resiliency in 2007-2008. This goal was achieved for 51.97% of the service-learning students in year two.** Participating students demonstrated that they were volunteering to help other people in stressful situations as they recorded higher volunteer hours at post survey than at pre (Item #36).

### **Gender and Grade Analyses**

These outcomes demonstrated that students involved in service-learning in Tennessee were more motivated to be engaged in school and relating positively to adults, they were more interested in helping in the community, and they had improved their skills in problem-solving and resiliency. These Tennessee students, some of whom were academically challenged, responded with enthusiasm to the service-learning pedagogy. Students won the praise of their peers, parents, teachers, community leaders, and citizens in their communities as they gave service, built projects, and improved neighborhoods and schools. The evidence for real change in students’ attitudes due to service-learning seems strong in the Tennessee Learn and Serve sites when reviewing the qualitative outputs and the quantitative data.

However, alternative hypotheses would be that the service-learning methods and programs might only be helping girls or boys or students in one grade level and these findings may be restricted to those groups. To investigate these alternatives, the evaluator created statistical programs to use gender as a moderating variable. **Tables 4-6 in Appendix D** shows the simple frequency and mean charts, listing the gender means scores by each school level for the service-learning (called experimental) students and the comparison groups.

At first glance, reviewing the service-learning boy and girl means on the first 32 items, from pre survey to post survey both genders in high school showed improvements from pre to post survey. The boys had a 3.51 mean at pre survey and a 3.69 at post, whereas the girls had a pre survey mean of 3.82 and a post survey mean of 3.97. The comparison group findings showed that boys had an insignificant decline in the first 32 attitudes from 3.78 at pre survey and 3.74 at post. Comparison girls decreased attitudes at the high school from 3.90 at pre-survey to 3.73 at post survey. The large numbers of students in the high school group allowed for more complex analysis and the evaluator found that gender was shown to be insignificant as a high school predictor of results. More important was the participation in service-learning as a predictor of improvement from pre-survey to post survey. There were too few middle school (Table 5) and elementary school participants (Table 6) to have valid sample sizes for the multivariate analyses.

To investigate whether **grade level** alone was influencing the results, grade levels were used as continuous variables in an equation. The simpler charts to read on this are **Tables 7-9 in Appendix E**. As can be seen when inspecting Table 7, the 10<sup>th</sup> and 12<sup>th</sup> grade students in service-learning had significant pre to post improvement. Students in grades 6-8 in **Table 7** who were service-learning middle school students in alternative schools, maintained the same level of attitudes over the pre to post survey, but the comparison students in grades 6-8 had significant decreases. But service-learning students in the traditional middle schools (shown in **Table 8**) demonstrated modest increases over time. There were significant declines for 7<sup>th</sup> and 8<sup>th</sup> grade comparison students in Table 8. Table 9 contains the elementary students but the too few students prevented the analysis by primary grade level.

In short, when grade level was analyzed, there was no significant growth for 9<sup>th</sup> graders or 11<sup>th</sup> graders in service-learning classes, but there were improvement in overall resiliency survey means from pre to post survey. Ideally, the service-learning program should be “robust” and have effects on both genders and all grade levels. The evaluator will encourage teachers to make sure the projects serve interests of boys as well as girls, and remind the teachers of the need for greater service-learning involvements for all grade levels of students.

## **Justification for a Pilot Study**

The next part of this narrative explains the design, instrument, and results of a preliminary study that was an optional part of the Learn and Serve Project. The evaluator, Dr. Molly Laird, asked teachers to cooperate with her and start building a data set of individual students' records that would measure the impact of service-learning participation on students' grades, days absent from school, misbehavior records concerning suspension events, and the number of in-school suspension events.

There are practical needs to establishing a link between service-learning and academic performance and improved behavior. Teachers and administrators want to use prevention programs that work, and they avoid using programs without "hard evidence". Also, a report from Civic Enterprises and Peter Hart Research Associates cited the fact that almost one third of all U.S. public high school students—and nearly 50% of minorities—fail to graduate with their class ("*Engaged for Success*" Bridgeland, DiIulio, and Wulsin, a monograph in April, 2008 submitted to the National Conference on Citizenship).

The first of the two studies summarized in the above report was called *The Silent Epidemic: Perspective of High School Dropouts* (study released in 2006). This study shows that students who were dropouts say that academic failure was not the principal cause of dropping out. What dropouts did not find in school were real-world applications of their school work (70% response rate) and they were bored with their classes (50%). "More than 80% of the students believed that if schools provided real-world learning—such as service-learning, work study, and internships—these opportunities would improve students' chances of graduating from high school." (Ibid, page 1)

In 2004-2006 Dr. Laird was the evaluator and research director of a short-term longitudinal project to measure academic performance and behavioral records of students suspended from school. These students were participating in alternative school programs that used service-learning as a teaching method. The sub-grants for the Community Services for Suspended and Expelled Students (CSSES) were funded by the Tennessee Department of Education as part of the federal funds from the Safe and Drug Free Schools and Communities program. Sub-grantees were selected after an open bidding process that included participants from already operating alternative public schools, school districts that wished to open a program for suspended or expelled youth, and nonprofit agencies that could collaboratively work with schools and serve suspended or expelled youth.

The aim of the Tennessee program for suspended youth, the project was called the CSSES program, was to serve students removed from traditional school settings by providing high quality service-learning experiences that were integrated with academic objectives. The desired outcomes were that: suspended students would sign a contract and agree to attend the alternative school, commit to attend it, work on school work and be involved with a service-learning project, and try to improve behavior and their commitment to school. (The reader can write to Volunteer Tennessee to get a copy of the PowerPoint findings of this study called, "Re-engaging suspended students in Tennessee: Longitudinal benefits from service-learning," as presented by Dr. Molly Laird and Meredith Freeman to the International Research Symposium on Service-learning, Tampa, Florida, October, 2007).



## Research Methods for the Earlier Study of Suspended Students and Service-learning

The heart of the research methods for the evaluation was to create a **longitudinal design** where baseline student records would be collected. After baseline, the same students would be tracked and data reported in the intervention period when they participated in service-learning. Finally, student performance data would be collected into a follow-up period in the next semester/ year. The project's **three time periods** were: the semester **before** entry into the CSSES program, the **current** semester which was called the **during intervention period** where students received the service-learning program, and the **follow-up period** where most students were reintegrated into traditional schools, dropped out, or were retained in an alternative schooling environment.

In the 2004-2005 year, the CSSES site staff (often educators) collected a set of data on 562 students who participated in service-learning. Students in the comparison group who were still attending traditional schools had a smaller sample size of 121, and these students were matched by school district, grade level, and gender to the suspended students, and they had to have at least one in-school suspension.

The findings for this 2004-2005 study were that suspended students participating in the service-learning program had statistically modest gains in overall grade point average, whereas the comparison students declined in GPA over time. Out-of school and in-school suspensions dramatically were reduced over time for the suspended service-learning students, and there was a large and statistically significant decline in days absent from school. Comparison students showed significant declines in out-of-school and in-school suspensions behavior over time, but their reductions were less than service-learning students. A summary of this Tennessee study would be that this intense service-learning approach with suspended students (each day for 2 hours or more) was successful in changing patterns of students' misbehavior, and service-learning participation diminished student absences while modestly improving grades.

### **Research Design for the Pilot Study of Learn and Serve Students, 2007-2008**

The pilot question investigated in 2007-2008 was: **How does service-learning participation influence Tennessee students in traditional schools (and a few alternative programs) where there might be less intensity of service-learning hours, but a similar duration of student involvement (one semester to a full year) as for the previous study?** Additional funds were not available (the Safe and Drug-free Schools grant for suspended students was not funded after 2005) to have many schools participating in the 2007-2008 Learn and Serve pilot program and to analyze the results in depth. Instead, the evaluator invited teachers to collect the data. Dr. Laird expected compliance from 5-8 schools of 21 sites. Teachers in three sites volunteered to collect the data for the 2007-08 year.

The 2007-08 behavior data sets were derived from student records given from three sub-grantee sites participating in service-learning.

- 1a) Dickson County's New Directions Academy, max.- S-L student records N=32
- 1b) Creekwood High School, comparison to New Directions, max. -Comp. records N=13

- 2) Lenoir City High School, no comparison group, maximum -S-L records N= 8
- 3a) Science Hill Alternative Learning Center, Johnson City, max. -S-L records N=32
- 3b) Science Hill Alt. School, (comparison to Learning Center) max. -Comp. records N=13

Summing up these N’s revealed a maximum number of 72 Service-learning students (S-L in the above chart), and 26 maximum for the comparison students. However, teachers were not able to get quick access to all the information and each outcome-- grades, suspensions, and absences-- and so the total for each outcome varied. The comparison students were not matched to the experimental students participating in service-learning, rather they were convenient comparison students whose records could be gathered by program staff and who had similar grades, suspensions and absences at baseline.

The following chart shows the total number of student records for the two time periods analyzed, before service-learning began (the “Before” column), and immediately after the participation—called “During” in the chart. Service-learning students are in the “S-L” columns and the comparison students are under the “Comp.” columns. (Note: the Student Data Form has a third column called “After” for the follow-up period. There were only a few student records for the semester after intervention. This time period was for students who finished a fall semester of service-learning and June, 2008 records were provided. Most sites will have “after intervention” records in the fall of 2008 or spring of 2009.). Preliminary data was noted on the graphs to follow, but further analyses will take place for students in the upcoming year.

**Tennessee Learn and Serve Pilot Study: 2007-2008**  
**Report of Number of Students with complete Data by Outcome and Time Period**  
**Totals for Students with Any Information**

<u>Outcome</u>	<b>Before N=</b>		<b>During N=</b>	
	<u>S-L</u>	<u>Comp.</u>	<u>S-L</u>	<u>Comp.</u>
Grade Point Avg.	59	20	60	23
Out-of-school Suspensions	27	11	57	25
In-school Suspensions	26	12	55	26
School Absences	25	11	65	24

## The Data Collection Instrument

A Tennessee Learn and Serve Student Data Form was created by Dr. Laird (see this one page tool—Appendix F.) and used to collect the student’s name, gender, grade level, and **potential outcome variables:** grade point average, number of out-of-school suspensions and in-school suspensions, number of these misbehaviors involving violence or substance abuse, and number of days absent from school. All of these variables were partitioned into reporting time periods with columns for “**before**” (the baseline), “**during** intervention.” (The small numbers of after-intervention records were also separated.)

## Statistics

This pilot study had too few students to perform advanced statistics (other than Chi-Square analysis) with validity. The evaluator is using these data to show trends and will discuss frequencies, percentages, changes in percentages and means over time. She will report on statistical probabilities in the next year when larger samples of matched students have been promised to be collected by teachers. For this year, the evaluator will examine patterns for the service-learning and comparison groups. Results discussed below are for the combined student groups from the three service-learning sites and the two comparison group sites. It should be noted that two of the three sites providing data for the study were from students in at-risk programs and not traditional high schools (New Directions and Science Hill). Therefore, the pilot study in the 2007-2008 year did not provide a test of how students in traditional Tennessee high schools participating in service-learning performed in school.

## **Preliminary Results for the Limited Student Samples**

### Grade Point Averages

Yearly grade point averages were collected on a small sample of 59 students in the year before they entered service-learning (June, 2007), and 60 students at the end of service-learning (June, 2008). There were only 20 comparison student records for GPA in the 2007 baseline year, and 23 comparison student records were submitted by teachers in June, 2008. **Graph 12 shows there was an increase in GPA for the service-learning students** with a GPA of 2.75 in the before period, and a 3.01 GPA at the end of the semester/year of service. **This represents a grade increase of 9%.** The comparison students had a GPA of 2.44 in the before period, and had a 1% increase to 2.48 in the “during” period. The after period had limited data for the students, especially comparison students, and will not be discussed this year. The grade improvement was modest for service-learning students.

### Out-of School Suspensions

**Graph 13** shows that the out-of-school suspension events declined from an average of 2.18 in the semester before service-learning began to 1.23 in the semester/year in which students participated in service. For some reason, the comparison students also had fewer suspension events over the same time period (1.64 to .41). **There was a 44% decline for service-learning students and a 75% decline for the comparison students.** The sample numbers were small, and the trend shows better improvement

for the comparison students. Next year's sample should be a better test for the relationship of service-learning and out-of-school suspensions.

### In-School Suspensions

In-school suspensions contained small samples as well (see **Graph 14**), and there was an **82% decline in these suspension events for the service-learning students, from 6.22 events in the before period to 1.11 in the semester or year of service-learning**. The comparison students started out at 6.42 in-school suspension events and this group of students had a 53% decline to 3.04 events in the second time period. A larger sample of students in both groups next year should reveal the relationship between service-learning and a decline for in-school suspensions.

### Student Absences

The last behavior record set examined was student absences from school. One of the most critical indicators of student engagement in school is the attendance record. There is high risk of school failure and dropping out of school, when students have high numbers of days absent. The sample of service-learning students started with a high absence rate, 15.12 days absent (see **Graph 15**). This is probably due to how students are referred to the New Directions and Science Hill programs. Student absences and misbehavior are the two common referrals. During the service-learning semester/year, those participating in the program dropped to a 6.49 days absent average. This was a 57% decline in absences. The comparison group started at 12.91 days absent (in 2007), and had an average of 9.21 days absent at the end of the 2008-- a 29% decline in days absent. **For some reason both the service-learning and comparison students had fewer days absent over time, but those participating in service-learning had a greater change in days absent.**

### **Summary of Major Findings**

These very preliminary findings for 2007-2008 show improvement in grades and behavior for the service-learning students, but there were significant reductions in days absent, in-school suspensions, and out-of school suspensions for the comparison group. To affirm the four major results of a larger sample of students (N=558 service-learning students and 121 comparison students) measured in 2004-2005 in Tennessee, a larger sample of students in traditional public high school students is needed.

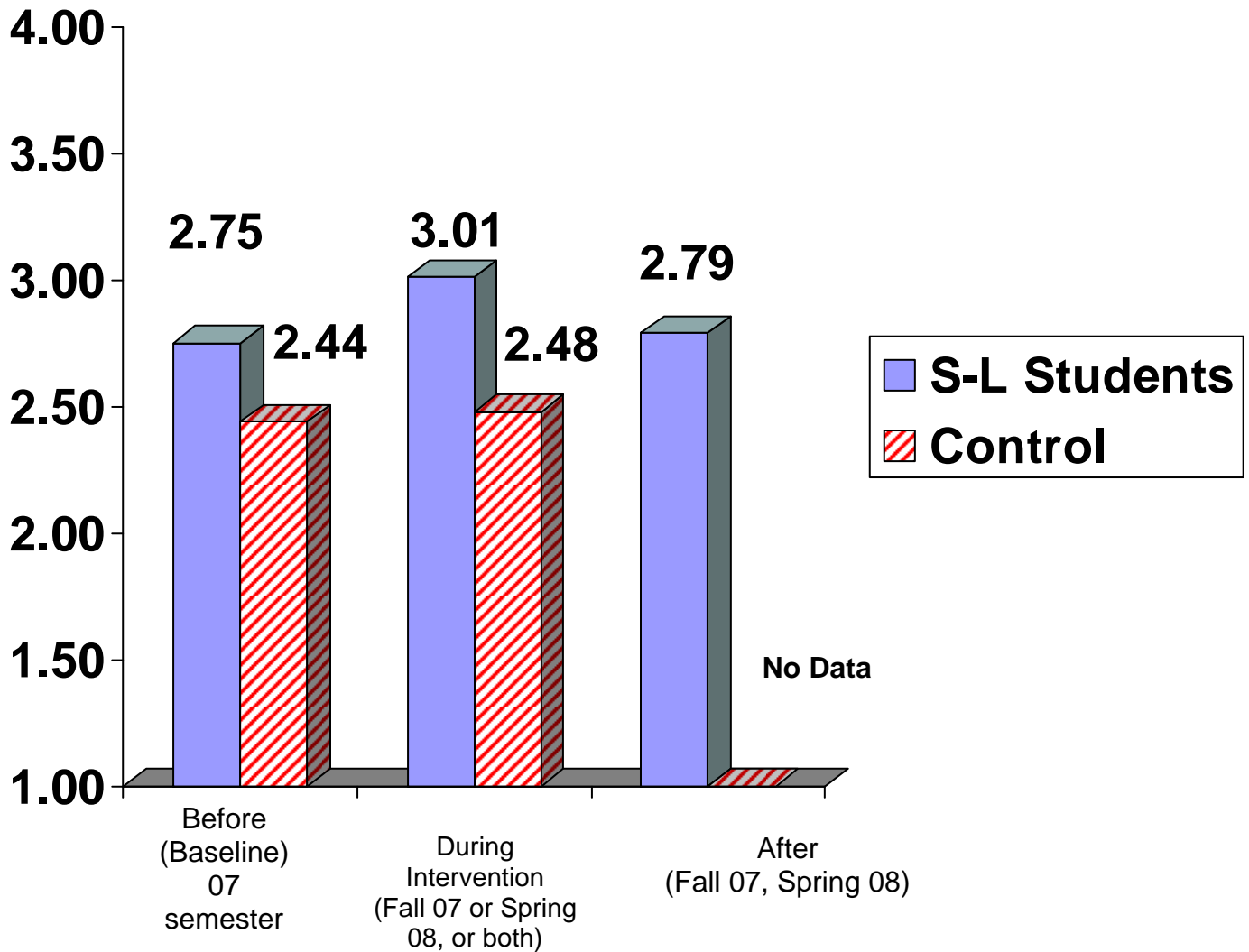
Some evidence of service-learning impact was seen when those students had modest increases in grade achievement, whereas the students in the (small) comparison group had no significant improvement. Caution about these findings is warranted since the level of improvement varied greatly from site to site and the sample size was small. In September, 2008 teachers from two additional sites with large numbers of students promised to collect these data and hopefully it will show a positive and significant improvement associated with service-learning participation.

## Summary and Recommendations

**Two large recommendations for future research** are:

- 1) Since the several item attitude changes were found, but the overall gain score changes for the entire survey were modest, teachers should increase the number of hours they use service-learning with their students in hope of creating a classroom climate that supports resiliency, problem-solving and connectedness to school. The national standards of high quality service-learning (see Shelley Billig's work) were discussed with teachers in Nashville in May and September of 2008. The recommendation was that teachers should try for 30 to 50 hours of service-learning activity (as a total of the four steps in the cycle) per semester.
- 2) More evidence should be collected concerning **school performance** to see if service-learning improves grades in school, attendance, and behavior.

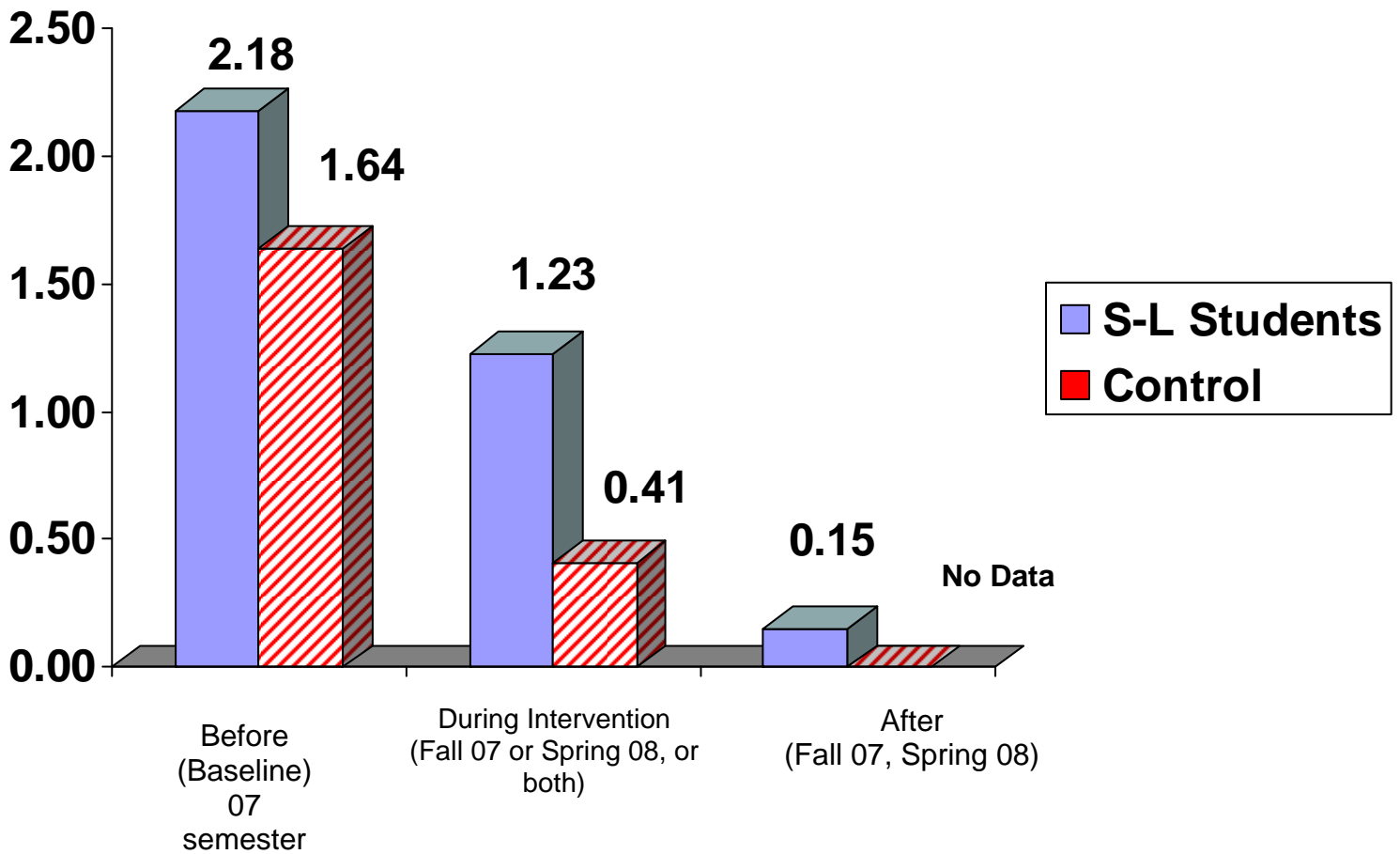
Graphic 12  
 TENNESSEE LEARN AND SERVE  
 2007-2008  
**GRADE POINT AVERAGES**  
 CONTRAST BETWEEN SERVICE LEARNING  
 AND CONTROL STUDENTS



**GRADE POINT AVERAGE**

Note: Total # of S-L students: Before – 59, During Intervention – 60, After – 12  
 Total # of controls: Before - 20, During Intervention - 23, After – No Data

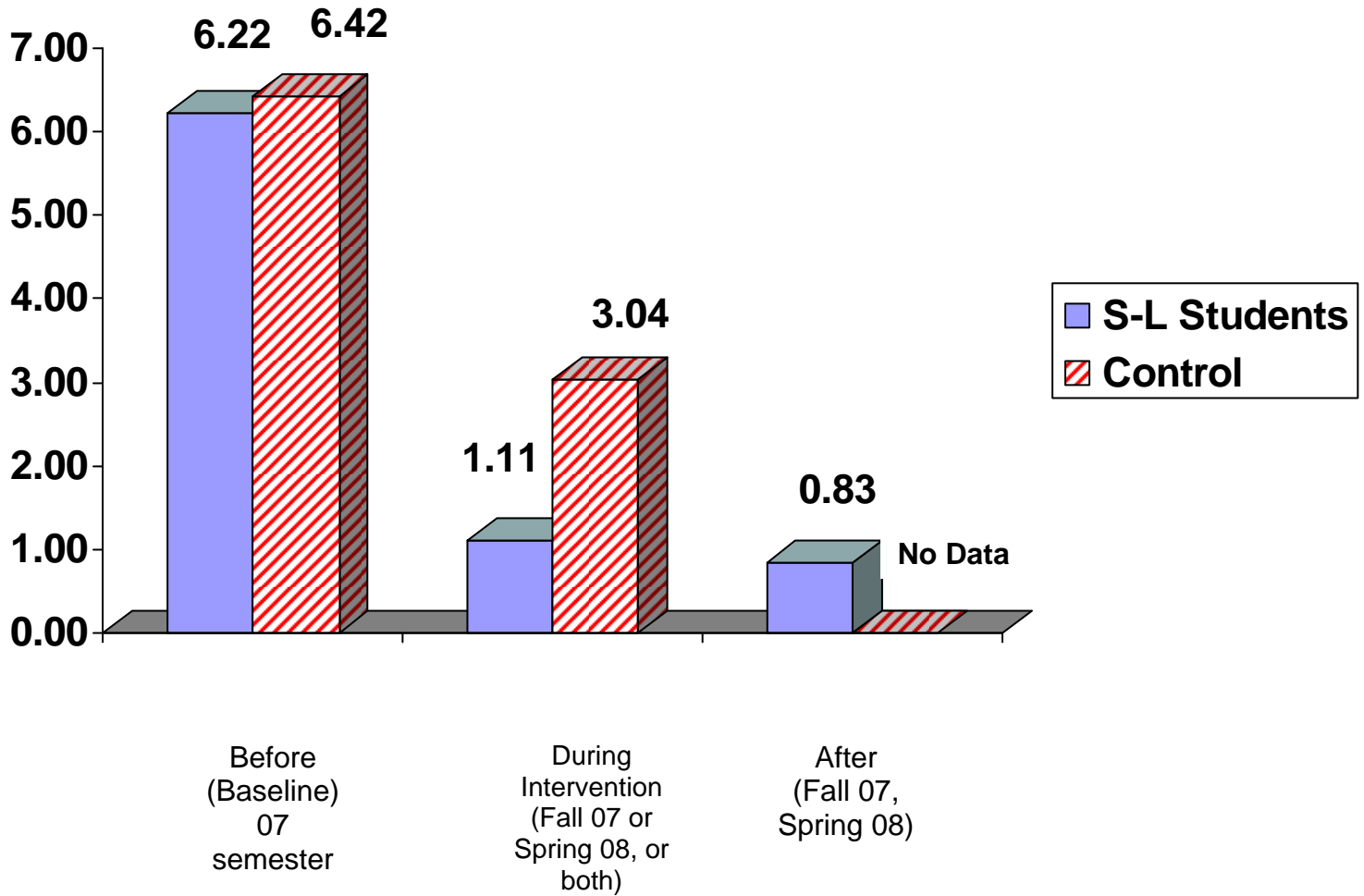
Graphic 13  
 TENNESSEE LEARN AND SERVE  
 2007-2008  
**OUT-OF-SCHOOL SUSPENSIONS**  
 CONTRAST BETWEEN SERVICE LEARNING AND CONTROL STUDENTS



**Suspension Events: 1 Day to 1 Year**

Note: Total # of S-L students: Before – 27, During Intervention – 57, After – 11  
 Total # of controls: Before - 11, During Intervention - 25, After – No Data

Graphic 14  
 TENNESSEE LEARN AND SERVE  
 2007-2008  
**IN-SCHOOL SUSPENSIONS**  
 CONTRAST BETWEEN SERVICE LEARNING AND CONTROL STUDENTS

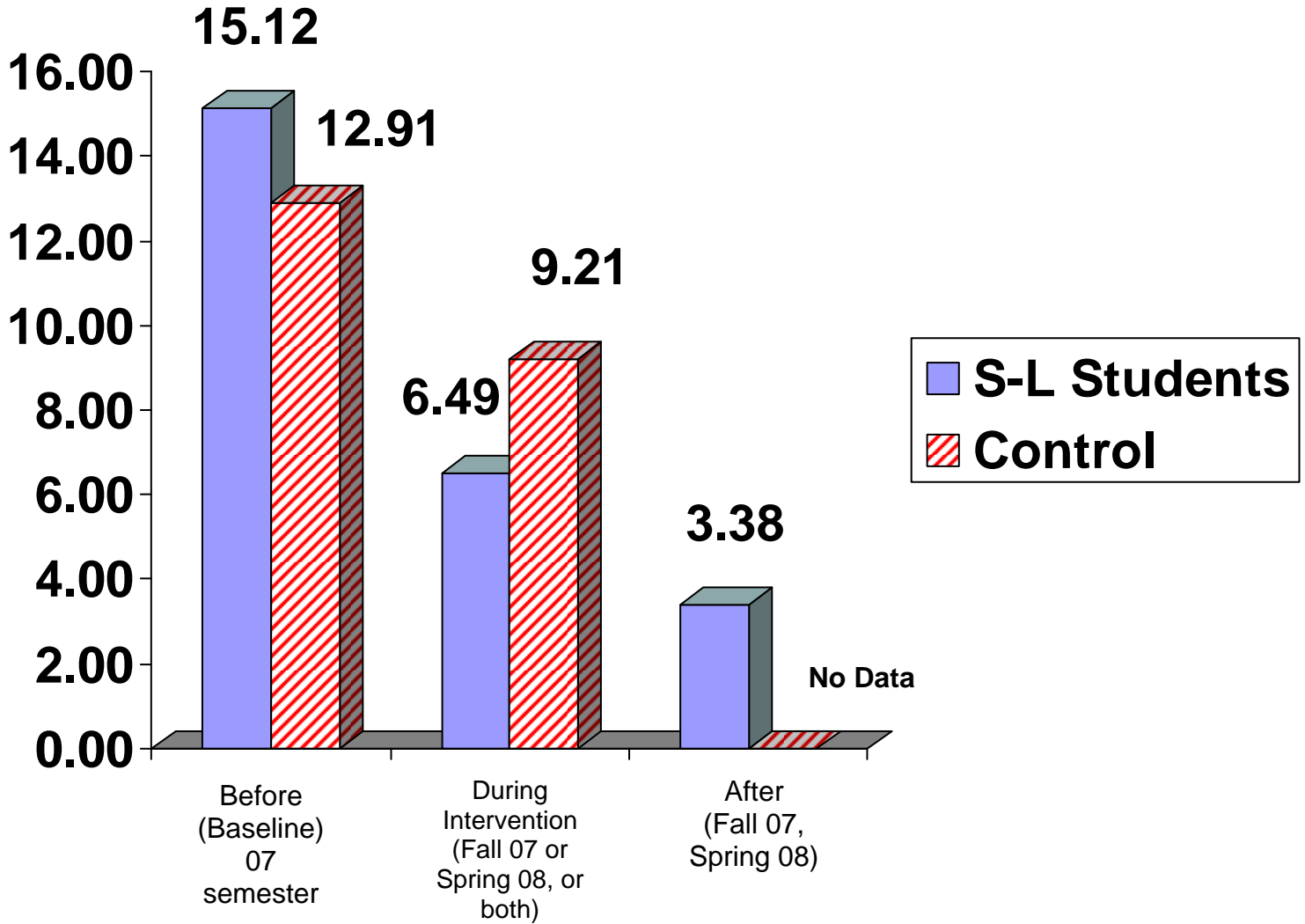


### Suspension Events: 1 Day to 1 Year

Note: Total # of S-L students: Before – 26, During Intervention – 55, After – 10  
 Total # of controls: Before - 12, During Intervention - 26, After – No Data



Graphic 15  
 TENNESSEE LEARN AND SERVE  
 2007-2008  
**STUDENT ABSENCES**  
 CONTRAST BETWEEN SERVICE LEARNING AND CONTROL  
 STUDENTS



**DAYS ABSENT**

Note: Total # of students: Before – 25, During Intervention – 65, After – 9  
 Total # of controls: Before - 11, During Intervention - 24, After – No Data

## **APPENDICES**

- A.**
  - 1. Pre Resiliency Survey, Tennessee Department of Education and Volunteer Tennessee, Learn and Serve: Secondary Student Survey (grades 6-12)**
  - 2. Pre Resiliency Survey, Tennessee Department of Education, Learn and Serve Elementary Survey**
- B. Site lists- High Schools, Middle schools, and Elementary schools\***
- C. Grand Totals—Excel charts of survey results with frequencies, percentages and Means for the Middle and High School and Elementary Students\***
- D. Gender Tables 4, 5 and 6\***
- E. Grade Tables 7, 8, and 9\***
- F. Student Behavior Records Data Form**

**\*Note: All of these data sets and graphics were based on the valid cases samples of students new to service-learning for this year.**