How a Small, Rural School District REDUCED the Achievement Gap With Study Technology

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The Intervention:

Applied Scholastics services employing the fundamentals of Study Technology have been shown to increase student academic achievement markedly in a variety of learning environments. The current project demonstrates results in a small school district of an impoverished farming community in Mississippi. The district serves about 1000 African-American students, 98% of whom come from low-income families. When Applied Scholastics entered the scene, teachers and administrators were struggling to achieve "adequate yearly progress" and to overcome the hopelessness that characterized their student body.

The educational methods employed by Applied Scholastics were created by humanitarian and educator, L. Ron Hubbard, who researched and wrote on a wide range of educational issues. Taken together as a body of knowledge the methods developed by Mr. Hubbard are known as Study Technology. The pedagogy includes both structural and strategic components.

In August and September of 2003, Applied Scholastics staff and a handful of volunteers conducted several workshops in Study Technology. A two-day workshop for teachers in the district covered key strategies for overcoming learning barriers. For students, the intervention began with the training of fifth through twelfth graders in the basics of Study Technology, carried out workshop style with groups of 75-125 in the school auditoriums. A group of 29 volunteers and Applied Scholastics staff members delivered this training in half-day sessions over a two-week period.

Chosen by the school administration, the neediest 227 students from grades five through eight received academic remediation during three one-week visits by the Applied Scholastics team. In January, February and April, teams of seven to eleven tutors came armed with just one of the many precision tools of Study Technology, and applied it to language arts and mathematics. (As the project evolved, emphasis was switched to mathematics mainly.)

Typically the academic remediation was delivered to *small groups* of five students, rather than individually. This was due to the fact that the circumstances and resources would not support one-on-one instruction for the number of students needing help. Facilities for the sessions were usually makeshift and changing, as the school administration continually sought space to accommodate them. Tutors frequently found themselves moving from one space to another, toting supplies and materials.

Not all students received the same amount of tutoring. Some were absent during part of the time that the Applied Scholastics teams were on site. Some students missed sessions due to scheduling conflicts, etc. Such conflicts were especially evident among seventh and eighth grade students. All in all, the most tutoring received by any student was 15 hours. Many received less.

A remarkable feature of the intervention was its practicability and cost-effectiveness. Only a few key members of Applied Scholastics staff participated in the delivery. Supporting them were volunteers, whose main qualification was they had completed basic training in Study Technology. About half of these volunteers were *students between the ages of 14 and 17*, recruited from Applied Scholastics schools and tutoring centers around the country. For example, thirteen teen-agers were among the 29 persons who delivered the initial Study Technology instruction to students. On the subsequent remediation teams about half were teen-aged students.

Objectives:

Aside from the humanitarian impulse to reach out to struggling students and educators, Applied Scholastics sought to accomplish several objectives in the Mississippi school district:

- To reduce the achievement gap for students
- To bring students self-confidence and hope and new attitudes toward learning
- To demonstrate the sheer power of Study Technology by applying it under thoroughly adverse circumstances
- To demonstrate the efficacy of peers as tutors and small group instruction in place of one-on-one contact when Study Technology is employed
- To demonstrate the power, practicality and adaptability of Study Technology for today's classrooms

Academic Results:

For the large group Study Technology training records were inadequate for determining which students participated and to what degree. It was decided to concentrate analysis on results of the small group remediation delivered to fifth through eighth grade students, for whom individual scores on statewide achievement tests were available.

Achievement data for the remediated students were available in the form of scale scores for the Mississippi annual statewide test for 2003 (pre-test) and 2004 (post-test) in Reading, Language Arts and Math. The pre-and post-test scores were available

for the tutored students individually and, in the form of mean scores, for their statewide grade level cohorts.[1] This permitted computation of the academic deficit of the tutored students as a group in relation to statewide performance both before and after the tutoring intervention. What follows describes more specifically both the nature and the analysis of the data.

The group of 227 tutored students included 15 special-education students. A change in the State of Mississippi testing procedure occurred in 2004. Previously teachers were permitted to choose the level on which special education students were tested, which meant that they were usually tested at their actual functional level rather than the age appropriate level. In 2004, however, special education students were tested at the age appropriate level, thus depressing their performance in comparison to the prior year. Since the comparison between 2003 and 2004 would not then accurately reflect the progress of these special education students, it was decided to eliminate their scores from the analysis.

The data supplied by the school district were incomplete. Matching scores—both pre-test and post test scores—were not available for every student. Some students had transferred in from other districts, therefore 2003 scores were not available. A few did not take the 2004 exam in one or more subjects. Scores were absent completely for one student. To determine whether the incomplete matching of scores would make a difference in the results, the data were analyzed twice. In the first instance all available scores were used to compute mean scores for the groups. In the second instance, scores were eliminated that did not have a match. The second method provided slightly lower results, so those lower results are the ones being reported here. The final sample size for each grade level is shown in the data table presented.

Scaling is a measurement technique in which scores are arranged arbitrarily along a predetermined continuum. In Mississippi student raw scores are converted to scale scores identified with four academic proficiency levels—minimal, basic, proficient and advanced. For example, in fourth grade math the minimum scale score required for the proficient level is at least 488, but in 5th grade the requirement is 520. Given the nature of scale scores—a rise in scale scores from year to year does not reliably indicate progress toward greater proficiency—it is not appropriate to compare scale scores from one year to another (i.e. 2003 to 2004).

1 *A mean score is the average of all scores in the group.*

What was done instead was to compare the performance of the tutored students, using the mean score for the group, with the performance of their statewide grade-level cohort, *for the same year,* with the relative performance of the tutored group expressed as the percentage below the reference group —a measure of the achievement gap. This was done for each year to see whether and how much the achievement gap was reduced from 2003 to 2004. The table below presents the results of the analysis.

Achievement Gap Reduction from 2003 to 2004 for Fifth through Eighth Grades in Reading, Language Arts and Math

Grade	Sample Size	Subject	Gap in 2003	Gap in 2004	Reduction/ (Increase)
5th	11	Reading	-16.02%	-11.13%	30.5%
		Language	-15.58%	-13.16%	15.5%
		Math	-19.06%	-10.16%	46.7%
6th	18	Reading	-10.70%	-5.82%	45.6%
		Language	-10.77%	-9.41%	12.6%
		Math	-16.39%	-7.70%	53.0%
7th	102	Reading	-9.74%	-8.41%	13.7%
		Language	-8.82%	-7.15%	18.9%
		Math	-8.08%	-8.43%	(4.33%)
8th	35	Reading	-9.59%	-8.18%	14.7%
		Language	-10.80%	-7.06%	34.6%
		Math	-10.66%	-9.54%	10.5%

Summary and Discussion of Academic Results:

Twelve sets of pre and post "gap" measures are shown above. In all but one case, the gap was reduced by amounts ranging from 10.5% to as high as 53%.

The greatest improvement was seen in fifth- and sixth-grade math—with 46.7% and 53% reduction respectively—which is in keeping with the emphasis given to math in tutoring.

Though reading was not directly addressed, relative reading performance improved for every grade –with reductions as high as 30.5% and 45.6% for fifth and sixth grades. The remedial tool used by tutors has a powerful effect on literacy.

The superior improvement of the fifth and sixth grades may have been influenced by greater support for Study Technology in the classroom from the fifth- and sixth-grade teachers. It was noted by Applied Scholastics faculty during the two-day teacher training workshop in the summer of 2003, and subsequently verified by observation, that the teachers most interested in applying Study

Technology in the classroom were grouped at the fifth and sixth grades.

Attitudinal Change:

Students were asked to write a brief essay at the conclusion of their training and/or series of tutoring sessions. Just a few excerpts from the essays have been chosen to present here as representative examples of student attitudes toward learning, toward themselves and toward the future. Where known, the age or grade of the student is reported.

Excerpts from Student Essays

I have learn many of thing from go back to the Learning How to Learn *book they help us with our math and I thought that I will never will learn my math and I like that a lot because it feel like a new person in me ever since I learn my math thank you.* **—N.H., age 15, 7th grade**

It made me proud. **—J.S., 4th grade**

I feel like this program has helped me for life. It has changed me. I really enjoyed this lesson and I feel that as a student I can do things a lot better than before; such as clear up words, get the actual thing, and never move to a large thing if I don't already understand the smaller one. **—L.H.**

I learned how to make studying and learning much easier by finding the mass of an object or you can start feeling confused and all that was was a misunderstood word. I didn't like SSFL [Study Skills For Life Course] *at first. I guess I was blowing at that time, but now that I understand what* SSFL *is all about I started to like it very much. In fact I started to love* SSFL*. I feel now that I have taken this program I will become a better student because now I know how to solve all my problems I have been having in class. I feel that school will be much more easy to me now than before and I would like to say now I feel like I can take on the world now. Thanks!!!!!!!!*

—D.C.

…If the Lord is willing and nothing happen I'm going to go to college and use exactly what my Learning How To Learn *teacher taught me…It was fun being with you guys and I hope to see you later on in life when I have my Masters degree.*

—M.C., 7th grade

Summary and Discussion of Attitudinal Results:

Over and over Applied Scholastics hears of the "life-saving" impact of Study Technology. Failed or failing students who discover they *can* learn do an about face. Students find they enjoy learning and begin to set more goals for themselves in life. In addition to reducing the achievement gap, this project intended to bring about this kind of attitudinal change. The students' responses signify the accomplishment of that objective.

Conclusions:

A very substantial amount of change was achieved in a very minimum of time using only one tool from a very wide array of learning tools inherent in Study Technology. It is exciting to imagine what result could be achieved in more time and with access to more of these powerful tools. Certainly the achievement gap could be fully eliminated.

Note that the outstanding results were achieved in the face of suboptimum learning environments and resources. The power of Study Technology can overcome such barriers, even when service is delivered by students' peers. This opens the door to using peers and high school students for small group or individual instruction in schools that lack resources – or even those that do not.

Additionally, Study Technology causes attitudinal change in students that can be very important in producing academic achievement. Students become more confident of their learning abilities, more optimistic about the future and a more responsible partner for their own learning.

The power, practicality and adaptability of Study Technology have been demonstrated in this project.

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