

High Schools That Work

A Summary of:

MAKING HIGH SCHOOLS WORK: Through Integration of Academic and Vocational Education, 1992, by Gene Bottoms, Alice Presson and Mary Johnson

“SEVEN MOST IMPROVED HIGH SCHOOLS THAT WORK SITES RAISE ACHIEVEMENT IN READING, MATHEMATICS, AND SCIENCE,” 1995, by Gene Bottoms and Pat Mikos (High Schools That Work, A Report on Improving Student Learning)

Overview

The High Schools That Work (hereafter HSTW) initiative was launched by the Southern Regional Education Board (hereafter SREB) in 1987 to ensure that all students in participating schools and school districts, including those who do not plan to pursue a 4-year college degree, are prepared to enter the competitive workforce. HSTW is a full-school reform initiative that changes what children are taught, how they are taught, and what schools expect of them, including improving how academic and vocational teachers relate to each other and to their students. HSTW is especially designed to raise the achievement levels of career-bound high school students.

POPULATION

HSTW is aimed at making sure the “forgotten half” of students learn and achieve at the same levels as those planning for college. SREB defines career-bound high school students as the 60 to 70 percent of students who plan to work after high school, attend a two-year college or enter the military. These students do not plan to attend college, but may make a decision to attend a four-year college at a future time. At SREB schools, in 1993, 31 percent of students were minorities. SREB collected data on education of parents: 23 percent had college degrees, 23 percent had more than a high school education, 39 percent had a high school diploma and 13 percent had less than a high school education.

Evidence of Effectiveness

All 650 HSTW sites (both schools and school districts) in 21 states commit to “closing the gap” between achievement levels of career-bound young people and college-preparatory students and agree to participate in a common assessment process which includes pre- and post-scores on tests similar to those used by the National Assessment of Educational Progress (hereafter NAEP) and student

“The vocational curriculum’s potential for advancing the academic achievement of career-bound youth is often underrated. Vocational teachers who concentrate on vocational skills only, while expecting others to teach academic skills, are short-changing their students.”

SREB

and faculty surveys. Site data is broadly shared among sites and sites are compared against themselves and against NAEP data to measure success at meeting HSTW goals. SREB chose to report data showing improvement over time (from 1990 to 1993) in student outcomes from seven HSTW schools which improved the most. These schools:

- ◆ increased scores by 65 percent in reading, 36 percent in math and 70 percent in science
- ◆ increased the percentage of students taking four or more full-year courses in mathematics (32 to 40 percent)
- ◆ increased student mathematics scores even as students took more challenging courses (294.1 to 299.132 on NAEP-like tests)
- ◆ increased the vocational credits of career-bound students from 6.0 to 6.6 credits
- ◆ increased the percentage of students who completed four credits in a planned career major from 63 to 67 percent
- ◆ increased the average total credits earned from 23.6 to 24.5 credits
- ◆ made vocational courses more challenging and placed greater emphasis on getting students to use academic content and skills in vocational studies. [From 1990 to 1993, students at these schools reported that their vocational teachers

more often stressed reading (46 vs. 55 percent), mathematics (54 vs. 64 percent) and science (26 vs. 39 percent).]

- ◆ reported increases in the percentage of students receiving extra help from family (48 to 58 percent), mathematics teachers (60 to 73 percent), vocational teachers (21 to 37 percent), resource teachers (3 to 11 percent), tutors (8 to 17 percent)

SREB also compared practices at high achieving HSTW schools with practices at low achieving HSTW schools (often those newly on board) with the expectation that these practices contributed to the better schools' higher levels of achievement. Students at the most-improved schools, compared to students at the newest HSTW sites, reported:

- ◆ vocational teachers stressed reading (55 vs. 42 percent), mathematics (50 vs. 39 percent) and science (39 vs. 23 percent)
- ◆ academic teachers related academic content to real-world applications (75 vs. 67 percent); used mathematics to solve work-related problems more than twice a year (51 vs. 43 percent); related science to the real world weekly (78 vs. 70 percent)

courses were challenging and exciting (70 vs. 54 percent), they were encouraged to take mathematics and science (67 vs. 46 percent), they took mathematics in their senior year (50 vs. 40 percent) and science in their senior year (37 vs. 30 percent)

Key Components

Each HSTW site has, or aims to have, the following characteristics:

- ◆ high expectations of students in both academic and vocational classes
- ◆ vocational courses emphasizing students' communication, math, and science competencies

"Schools making the most progress in High Schools That Work motivate students by establishing higher standards and getting students to work harder and longer to meet them. At most American high schools, time is fixed and standards are flexible. HSTW's most-improved schools reverse the process by setting high standards and providing extra time and help for students to meet them."

SREB

- ◆ academic courses teaching concepts from the college preparatory curriculum through functional and applied strategies
- ◆ elimination of the general track
- ◆ all students complete a challenging program of study, including three courses in math and three in science (with a least two credits in each course equivalent in content to courses offered in the college preparatory program) and are actively engaged in the learning process
- ◆ a structured system of work-based learning
- ◆ vocational and academic teachers working together to integrate academic and vocational curriculum and instruction and receiving staff development, materials, and time to work together
- ◆ guidance and counseling services, including parent involvement
- ◆ a structured system of extra help to enable career-bound students to complete an accelerated program of study that includes high-level academic content and a career major

“Students in general and vocational programs of study deserve a better deal than they are getting. They are entitled to just as much encouragement, rigorous coursework, faculty guidance, planning, and evaluation as students preparing for a four-year college or university. They are not just the majority in high school; they represent the majority in the work force as well.”

SREB

- ◆ student assessment and program evaluation (using data to continuously link school and instructional practices to improved student learning)

The seven most-improved sites vary in location, size, student characteristics and types of programs offered. One school belongs to the nation’s 10th largest school district, four schools have fewer than 1,000 students, two have between 1,000 and 1,500, and one has over 1,500. Five of the seven sites are ethnically diverse, enrolling a minority student population of 24 to 56 percent. Five are comprehensive high schools, one is a technical high school, and the seventh is a high school working with an area vocational center. All seven most-improved schools use applied learning materials developed by the Center for Occupational Research and Development (CORD) in Waco, Texas, as stand-alone courses or as part of regular college preparatory mathematics and science courses.

Contributing Factors

Quality of Implementation

Implementing the key practices identified by SREB for HSTW sites—high expectations; increasingly challenging and integrated academic and vocational studies; a structured system of work-based learning; vocational and academic teachers have time, materials and encouragement to work together; advising system including parents; extra help; student assessment and program evaluation—led to the most improvement on achievement levels in reading, mathematics and science.

High Expectations

SREB: “Students achieve at a higher level if they are required to simulate and use information, manipulate abstract concepts, perform complex calculations, and solve practical problems. Students also make more gains if they use technology in their studies.” At the most-improved schools “English teachers ... required [students] to make oral presentations, state and defend opinions, compare ideas, write research papers, and read books outside of class.”

Integrated Curriculum

More students in high achieving schools read technical materials, solved mathematics problems related to their vocational studies, and completed projects assigned jointly by their vocational and academic teachers.

Academic teachers at the most-improved schools used applied learning strategies to teach mathematics, science and English to career-bound students.

Eliminate the General Education Track

SREB: “Schools that have made the most progress in raising expectations have replaced general mathematics, general science, and low-level English with courses that contain rigor and relevance to work and further study.”

Guidance/Support

SREB: “Sites that made the most improvement ... offer a guidance and advisement system to help students plan and pursue a challenging program of study. Teachers and parents participate actively in the process by helping students choose courses and understand the importance of a demanding program.”

Extra Help and Time

SREB: “Schools that make gains in student achievement do more than enroll students in college preparatory courses, hold them to high standards, and get them to work harder and longer. They give students extra help and time to meet more demanding requirements.” Extra help comes from mathematics, vocational and resource teachers, tutors and family.

STUDY METHODOLOGY

For analysis, SREB uses data from student and faculty surveys designed to capture perceptions about high school and a one-year follow-up survey of high school graduates; NAEP-type test data on student achievement in reading, mathematics, and science; an analysis of transcripts to link student achievement to the number and types of courses taken in high school; and site-visits.

EVALUATION FUNDING

Both reports by Southern Regional Education Board, Atlanta, GA.

GEOGRAPHIC AREAS

Established in 1987, HSTW has now grown to over 650 sites in 21 states: AL, AR, DE, FL, GA, HI, IN, KS, KY, LA, MD, MA, MS, NC, OK, PA, SC, TN, TX, VA and WV.

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