

Gateway To Higher Education

A Summary of:

MAKE IT POSSIBLE FOR STUDENTS TO SUCCEED AND THEY WILL: An Evaluation of the Gateway to Higher Education Program, January, 1997 Education Development Center (New York, NY) by Patricia B. Campbell, Ellen Wahl, Morton Slater, Elisabeth Iler, Babette Moeller, Harouna Ba, and Daniel Light

Overview

Started in 1986, Gateway to Higher Education is a comprehensive four-year secondary school program administered through the City University of New York and operating in five New York City high schools. It aims to prepare students for higher education and for careers in science, medicine, and technology.

POPULATION

Gateway is aimed at students who are under-represented in mathematics, science and medical careers. To enter Gateway, students must be at the 50th percentile on New York City's Seventh Grade Math test and the Degrees of Reading Power test, have regular attendance, and generally have grades of 80 or better. Eighty-three percent of Gateway students are African American or Hispanic; about 60 percent are female. Through an analysis of students' zip codes and census data, researchers determined that the students come primarily from low- income or lower-middle income families. By the mid-1990s, Gateway was serving over 1,000 students per year in five high schools.

Evidence of Effectiveness

The evaluation compares the success of Gateway to national data regarding the participation of minorities in math and science studies. For example, the proportions of African Americans, Hispanics and Native Americans of the entire population who participate in the following are very low: undergraduate science and engineering degree recipients (11 percent), medical school entrants (14 percent), and medical degree recipients (11 percent). Similarly low are the proportions of African Americans and Hispanics among high school graduates (21 percent), bachelor degrees in science and engineering (10 percent), and doctorates in science and engineering (five percent). African American and Hispanic high school graduates are less likely than whites to earn high school credits in

"On the one hand, these results should not be surprising, given that Regents course-taking and exam-taking are a required part of the Gateway program. On the other hand, it is noteworthy that students accepted this requirement, succeeded in these courses, and stayed on the college track while their control group counterparts, with ostensibly equal potential, exhibited a very different course-taking pattern and path toward post-secondary education."

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science and mathematics courses, less likely than whites to score at the proficient level on the National Assessment of Educational Progress (NAEP) science and mathematics tests (when they are 13 to

17 years old), and score lower than white and Asian American students on both the verbal and math portions of the SAT and on science and math achievement tests.

Gateway evaluation data is reported in terms of course-taking, test-taking, standardized test scores and grades, graduation and postsecondary attendance and retention compared to the overall high school population, a comparison group of New York City students, and to subgroups.

Course-taking (in 1992):

- ◆ Gateway students were much more likely to take advanced math and science courses than were high school graduates in general (98 vs. 52 percent took “Math III”).
- ◆ Gateway students were much more likely than all 1992 high school graduates to have taken chemistry (97 vs. 56 percent) and physics (83 vs. 25 percent).
- ◆ African American Gateway students were much more likely than all 1992 African American high school graduates to have taken chemistry (95 vs. 46 percent) and physics (90 vs. 18 percent).

Test-taking:

- ◆ Gateway students took the state-wide Regents exam at a much higher rate than other New York City high school students (e.g., 96 vs. 24 percent took the Chemistry Regents Exam; 76 vs. 14 percent took the Physics Regents Exam).
- ◆ Gateway students were more apt to take the SAT test (93 vs. 15 percent of the comparison group took the SAT at least once).
- ◆ Sixty-two percent of Gateway students took the SAT II Biology Achievement Test and 54 percent took the SAT II Chemistry Achievement Test.

- ◆ In the 1994-95 school year, 37 percent of the eligible Gateway students took the Advanced Placement (AP) Biology Exam; and ten percent took the AP Chemistry Exam.

Standardized test scores:

- ◆ Gateway students had relatively high scores on Regents Exams (from a low of 70 in Physics to a high of 81 in Math I).
- ◆ Gateway students’ SAT scores exceeded the national average. SAT: Mathematics 486 vs. 423 and SAT: Verbal 444 vs. 413; higher average mathematics and verbal combined scores (930 vs. 836).
- ◆ Gateway student scores were nearly 200 points higher than the mean 1993 SAT scores for African American students (SAT: 741, SAT M: 388, SAT V: 353) and the mean 1993 scores for Puerto Rican students (SAT: 762, SAT M: 409, SAT V: 353).
- ◆ Gateway students scored lower on the SAT Achievement Tests (a mean score of 496 vs. 558 for all, 491 for African American students and 518 for Puerto Rican students on the Biology test and a mean score of 467 vs. 582 for all, 514 for African American students and 523 for Puerto Rican students on the Chemistry test). [EDC: It is not clear why Achievement Test and Chemistry AP exam scores (below) were low. The data offered no clues, and the program directors had no definitive explanations to offer; they will use these findings to inform further program development and evaluation.]
- ◆ Gateway students’ mean Biology AP score was 3.29, which was higher than the 1993 mean score of 2.98 for all Biology AP students, and higher than the mean score of 2.11 for African American students and 2.62 for Puerto Rican students.

- ◆ Gateway students' mean AP Chemistry score was 2, lower than the national mean of 2.86 and the mean score for Puerto Rican students (2.3), but at the same level as the mean AP Chemistry exam score for African Americans (2.02).

Grades, Graduation and Postsecondary Attendance and Retention:

- ◆ Gateway students maintained relatively high course grades (between 83 and 85).
- ◆ Gateway students who entered in 1989 were more apt to graduate from high school relative to the matched comparison group (93 vs. 73 percent).
- ◆ Ninety-two percent of Gateway graduates went to college (eight percent to Ivy League schools; four percent to competitive technical schools; 39

percent to other private, four-year institutions). Of 177 former Gateway students who graduated in 1990 and 1991 and responded to a survey, 94 percent either graduated from college or are continuing toward a degree and 52 percent remain in the math, science, or engineering/technology fields.

- ◆ Of the 1,753 students who entered Gateway since its inception in 1986, 18 percent have dropped out of the program.

Interviewers of Gateway students found them motivated, confident and competent. They also tend to be very engaged in their communities, taking on leadership roles.

Gateway costs \$1,600 more per student per year than the mean New York City per pupil expenditure (mean not given in report).

Key Components

Each Gateway school has a coordinator and a team of teachers who stay with the students throughout their four years. The program is based on a strong belief that high expectations for all students, a demanding curriculum and a strong support system can lead to student success. Gateway features:

- ◆ an extended school day, including a double period of mathematics or science with a laboratory component and after-school tutorials
- ◆ an extended school year (11 months), including a month-long summer program for students entering the ninth grade and academic summer programs for juniors and seniors at high-level universities and research institutes
- ◆ classes composed solely of Gateway students, especially in mathematics and science, with a maximum enrollment of 25 students
- ◆ four years of regents-level science, mathematics, social science, foreign language courses and an average of three Advanced Placement courses for all Gateway students

“Gateway requires students to engage in rigorous academic content and to avail themselves of ancillary opportunities such as internships, tutoring, and college visits. It provides guidance and resources (such as paying for the SAT) so that students stay on track to higher education.”

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- ◆ the expectation that all Gateway students will take the SAT
- ◆ information about college, beginning in the ninth grade, including an annual college fair and seminars for parents
- ◆ other enriching activities: exposure to professionals in science; field trips to museums, the theater, opera and symphonies; and after-school experiential internships

Contributing Factors

Systemic Reform

EDC: “While high expectations for all students have been part of the rhetoric for several decades, until recently, responsibility for success was still laid mainly on the student and barely on the system. Gateway was developed based on the assumption that responsibility for success needs to be equally shared by the student and the system ...”

Staff Qualifications

Teachers for Gateway are carefully selected, based on their qualification to teach the assigned course, their teaching experience, their willingness to put in the time and effort required to push Gateway students, and their ultimate belief that the students can succeed.

Focusing Limited Resources

EDC: Program developers “viewed the Gateway approach as a necessary step along the way to more major change, and they put their energy into strategies they believed were likely to produce

immediate results for the current population of students.” Once these results were gained (and they were gained the very first year of the program), it was much easier to engage teachers in continuing development.

Caring Adults

EDC: “Gateway students, teachers, and directors talked about the sense of connectedness they enjoy as part of a small entity within a large institution, how teachers know what is going on with all their students and make sure they don’t get lost or off the track, the commitment above and beyond their contract that Gateway teachers invest, and the opportunity that teachers have to talk with each other and be part of a team of educators.”

Other Factors

Other factors contributing to Gateway’s success are high expectations, a peer culture supportive of achievement, appropriate equipment in laboratories, and information about college admission.

STUDY METHODOLOGY

Researchers compared outcomes for Gateway students to those of a comparison group of non-Gateway students matched according to gender, race/ethnicity, and math and reading scores. Each of the comparison students met the academic criteria for eligibility for Gateway. Researchers also analyzed an existing database, conducted a series of interviews and focus groups with program participants and graduates, visited the five Gateway high schools, interviewed college admissions staff, and administered a survey to 1990 and 1991 Gateway graduates. They also compared SAT and Achievement test scores of Gateway students with national averages.

EVALUATION FUNDING

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GEOGRAPHIC AREAS

Gateway operates in five New York City public high schools.

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