

Research Results

Freshman Academy, Canton City Schools, Canton, OH, 2001

Abstract

During the 2000-01 school year, students attending the Freshman Academy in Canton City Schools used either Cognitive Tutor Algebra I or Interactive Mathematics Program® (IMP) curriculum in their math courses. Course passing rates were higher among the students using the Cognitive Tutor than the IMP students. Additionally, student and teacher surveys indicate that both students and teachers held a higher opinion of the Cognitive Tutor than IMP and were more likely to feel the curriculum they used should be used for future students.

Study Design:

Comparison group

Measures:

Teacher report/course grade

Study location:

Freshman Academy; Canton City Schools, Canton, OH

Study conducted by:

Canton City Schools

Course assessed:

Cognitive Tutor Algebra I

Data collection date:

2000-01

District Information:

Type: Public, urban

Students Enrolled: 480

% of Students Enrolled in
Reduced Lunch: 73%

Ethnic Breakdown:

African American: 33%

Caucasian: 65%

Hispanic: 1%

Participants

Participants were students attending the Freshman Academy in Canton City Schools. Incoming freshman students across the district have the option of signing up to attend the Academy; the first 480 students to sign up are enrolled.

Students who had signed up to take either pre-algebra or Algebra I were randomly assigned to use either Cognitive Tutor Algebra I or IMP as their math curriculum. In all, there were 98 Cognitive Tutor students and 195 IMP students.

Method

Course pass rates were reported for both groups of students. Additionally, students and teachers in both groups were administered surveys pertaining to their opinions of the math curriculum they had used.

Results

Overall, 83% of the students passed their mathematics course with a grade of "D" or better. Results for each curriculum are reported in Table 1. We compared the course passing rates among Cognitive Tutor and IMP students (which are comparable groups of students). While the difference in pass rates was not statistically significant ($\chi^2(1)=0.8$, $p>0.10$), there is still a trend that Cognitive Tutor students passed at a higher rate.

Additionally, student and teacher surveys indicate that those using the Tutor were more pleased with it than those using IMP. Cognitive Tutor students were more likely to think the Cognitive Tutor should be used again than IMP students were to think IMP should be used again (70% vs. 54%). This difference is not statistically significant ($\chi^2(1)=1.9$, $p>0.1$), but is still encouraging. As for teachers (2 Cognitive Tutor and 3 IMP), while they all felt both Cognitive Tutor and IMP should be used as pilot programs for another year, when asked to choose only one curriculum to be used, both Cognitive Tutor teachers and one of the IMP teachers chose Cognitive Tutor; one IMP teacher abstained from this question. Thus, both students and teachers felt Cognitive Tutor should be used again rather than IMP.

	Cognitive Tutor Algebra I	IMP
Number of students	98	195
Passing rate	90%	80%

Table 1: Passing rates for both math curricula

Discussion

In its first year of implementation in Canton City Schools, the Cognitive Tutor appears to have been successful. Students using Cognitive Tutor Algebra I passed their courses at higher rates than students using IMP. It should be noted that the criteria for passing the course are different for these two curricula, so a direct comparison of course passing rates may not be an accurate reflection of student success; still, the results are positive. The 90% pass rate among Cognitive Tutor students also compares favorably with the 64% overall pass rate among students taking Algebra I at other high schools in the district using a traditional curriculum. While these students may comprise a somewhat different (lower end) population, these results are still encouraging. (Note that Cognitive Tutor Geometry was also used among 81 advanced students; these students passed at a rate of 98%, indicating strong success of that curriculum as well.) Additionally, both students and teachers viewed the Cognitive Tutor favorably. The Cognitive Tutor will be used among all students attending the Freshman Academy during the 2001-02 school year.

For more information or for additional copies of this report, please go to <http://www.carnegielearning.com/results/reports> or send email to researchpartner@carnegielearning.com

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