Sturgis High School
Advanced Placement Calculus Report

Background information

Sturgis High School is a small rural school in southwest Michigan with approximately 1,000 students in grades 9–12. During the past decade, we have been attempting to improve our mathematics program. One of the ways that we have evaluated our efforts is to gather information about students completing our AP Calculus AB classes. This report summarizes our findings.

From 1990 through 1997 students in AP Calculus at Sturgis used an algebra, geometry, advanced algebra, pre-calculus sequence of texts. Students from 1999 and beyond used Contemporary Mathematics in Context (CMIC) Courses 1–4 developed by the Core-Plus Mathematics Project. The AP class of 1998 consisted of a mix of students who had studied from one of these two programs.

Advanced Placement Calculus Scores

The following graph represents the AP Calculus scores for the classes from 1990 to 2006. The mean score for each class is reported. The College Board considers “3” to be “adequate”; a “4” to be “good”; and a “5” is considered “excellent”. The graph shows a general positive trend in scores. On average prior to CMIC implementation 62% of the AP Calculus students took the AP test. As of 1998 the average rate of test-taking is 97%.

Over the time frame indicated, the number of students in AP Calculus fluctuated (from 4 to 19), as did the number of students in each graduating class (from 155 to 217). During the years 1998 to 2006, the percent of students from a graduating class that took the AP exam ranged from 2.4 to 8.1 percent.
Two Groups and Their Score Distributions

The following side-by-side bar graph shows the proportion of student scoring from 1 to 5 (and the proportion of students not taking the test) from the CMIC curriculum and the more traditional (non-CMIC) curriculum. (Students who took classes from both programs prior to calculus were excluded.)

Conclusions and Comments

As previously indicated, 97% of CMIC students took the AP Calculus AB exam compared to 62% of non-CMIC students. Approximately 90% of CMIC students who took the AP Calculus class received a score of 3 or higher on the exam. For the non-CMIC group, only 34% received a score of 3 or higher. Prior to implementing CMIC, only 4% of those students received a score of “5”. For the CMIC group, 35% have received a “5”. This evidence, along with the observation that the mean AP Exam scores for the last three years are higher than any previous year, confirms that the CMIC program at Sturgis High School prepares students for AP Calculus.

Apart from the formal evaluation data, feedback has been positive from former students who are currently attending Notre Dame and University of Michigan. Students indicate that their high school math experience prepared them well for studying college mathematics courses.

Finally, as a teacher who has taught AP Calculus to both CMIC and non-CMIC students, I have noticed an increase in students’ willingness to work on unfamiliar problems or new material. I have observed this on both a daily basis in class and during the College Board’s AP Calculus AB test in May, which may account for some of the increase in average AP Calculus scores.

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