CSM Student Academic Success: Mathematics Basic Skills Course Completion Rates
Fall 1993 - Spring 1997

Introduction
This report presents information on the performance of College of San Mateo [CSM] in fulfilling its mission of meeting the educational needs of students. It is part of a series of accountability reports which address both State and local interests in institutional performance. In general, these accountability reports follow a format developed by the State Chancellor’s Office.

This particular report focuses on the accountability area pertaining to student academic success as measured by successful course completion in mathematics basic skills classes.

Definition of Measure
The ‘successful course completion rate’ is defined by regulation as “the proportion of students attempting a class who receive an official end-of-term letter grade of A, B, C, or Credit.”

The data presented are student success rates for eight consecutive academic terms, Fall 1993 through Spring 1997 [Summer sessions are excluded from the analysis]. This report analyzes the academic performance of 2,004 students [duplicated count] enrolled in CSM’s basic skills mathematics course, MATH 811, Arithmetic Review.

MATH 811 was first offered in 1981 as a self-paced, self-study course in Arithmetic and Pre-Algebra. Enrollment in MATH 811 is “open entry,” which means students may enroll in the course at any time during a semester. The course is also “variable units,” which means students may earn anywhere from 1 - 4 units. Three units is considered to be full completion of the course; the fourth unit is awarded for extra enrichment work. MATH 811 is considered ‘basic skills coursework’ as the units earned are credit-bearing but the units do not count toward the Associa-
MATH BASIC SKILLS COMPLETION RATE
BY TERM
FALL 1993 - SPRING 1997
(8 Semester Average)

Term

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<tr>
<td></td>
<td>(N = 312)</td>
<td>(N = 263)</td>
<td>(N = 300)</td>
<td>(N = 246)</td>
<td>(N = 294)</td>
<td>(N = 194)</td>
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<td></td>
<td>32.7%</td>
<td>35.4%</td>
<td>40.7%</td>
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SUCCESSFUL COURSE COMPLETION: FALL 1993 - SPRING 1997

- The course completion rates for CSM students enrolled in MATH 811 is 38.6%. [See Figure 1]
- Collegewide Comparison. Figure 1 also presents course completion data for all CSM students during the same time period--70.3%. These data indicate that math basic skills students are considerably less likely to successfully complete their coursework than the Collegewide average completion rate for all courses.
- Academic Term. Figure 2 presents term-specific completion data for 8 consecutive semesters. These data indicate a considerable degree of variation in completion rates, ranging from 44.3% in Spring 1996 to 32.7% in Fall 1993.
- Ethnicity. White and Asian students earn the highest successful course completion rates in mathematics coursework at 43.8% and 40.4%, respectively. Successful course completion rates for other groups are as follows: Filipino - 39.5% Hispanic - 32.6% Pacific Islander - 32.5% and African American - 30.7%. [See Figure 3]
- Gender. Figure 4 displays completion rates by gender. These data indicate that female students successfully complete mathematics basic skills coursework at a rate greater than that of male students: 43.3% vs. 32.2%, respectively.
- Age. Outcome data indicate that older students [31 years or older] successfully complete mathematics basic skills coursework at a significantly greater rate than younger students. [See Figure 5]

CONCLUSION

The rate at which students complete basic skills coursework is one of the most fundamental measures of how well a community college carries out its instructional mission. The data presented in this report indicate that students enrolled in MATH 811, Arithmetic Review, are much less likely to successfully complete their course of study than the overall CSM student population. This data also indicates significant differences in course completion rates for different student subpopulations--viz., ethnicity, gender, and age.

The issue of what constitutes a “successful course completion” is complex in the case of MATH 811—a variable unit course. MATH 811 students may elect to complete less than 3 units. The data reported in this “CSM Research Briefs” count students who complete 1 or 2 units as “successful completers.” However, the MATH 811 curriculum is designed to
provide students with the skills and concepts [e.g., decimals, fractions, and integers] necessary for success in Elementary Algebra. A student who does not complete the full 3 units of MATH 811 credit is not prepared nor eligible for enrollment in Elementary Algebra.

The course completion rate differential between the Collegewide average [70.3%] and mathematics basic skills coursework [38.6%] would be significantly greater if students who completed less than 3 units of MATH 811 credit were not counted as “successful completers.” A recent study conducted by CSM Mathematics Professor, Robert Hasson, found that only 18.7% of students earned 3 units of MATH 811 credit. Measured in this fashion, this completion rate represent a 51 percentage point differential between the Collegewide average and MATH 811.

High failure rates in all types basic skills or remedial coursework--especially mathematics--has long been the norm at both two-year and four-year postsecondary educational institutions throughout the United States and California. However, we cannot be complacent about such figures, especially as the continuing expansion of open access higher education brings more under-prepared students needing basic skills and remedial coursework.

The growth in the number of students needing remedial education is not confined to the California Community Colleges. A recent report from the CSU Systemwide Office found record numbers of entering freshmen students needing remedial help. This data--reporting on 25,300 Fall 1997 freshmen students entering all 22 CSU campuses--indicated that 54% required remedial courses in mathematics before enrolling in college-level work. Individual CSU-campus figures were as high as 87% at Dominguez Hills.

It is important to recognize that measures such as course completion rates do not capture the totality of learning and teaching that takes place in CSM classrooms--especially basic skills classrooms. Those familiar with the educational enterprise fully understand the shortcomings of efforts to capture educational quality with any single statistical measure.

The inadequacy of single statistical measures of educational quality is even more apparent when applied to the context of basic skills coursework. Remedial education in the postsecondary context is acknowledged by many educators to be of the most difficult sort. The task of trying to educate students who have--for whatever complex set of reasons--not learned much in twelve years or more of conventional schooling, is an extremely daunting task.

Notwithstanding the above, rates of course completion are among the most commonly agreed upon measures of community college effectiveness. Accordingly, this report is intended to provide some useful measures by which to assess our efforts to help students realize their educational objectives.

Future CSM Research Briefs will analyze the educational outcomes associated with ESL coursework.
Figure 4
MATH BASIC SKILLS COMPLETION RATE
BY GENDER
FALL 1993 - SPRING 1997
(8 Semester Average)

32.2% 43.4%

Male (N = 850) Female (N = 1145)

Figure 5
MATH BASIC SKILLS COMPLETION RATE
BY AGE
FALL 1993 - SPRING 1997
(8 Semester Average)

28.9% 38.4% 50.4% 51.7%

19 or less (N = 547) 20 - 30 (N = 983) 31 - 39 (N = 270) 40 or above (N = 201)

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