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ABSTRACT

A study was conducted at Broward Community College (BCC) to examine the academic achievement of students who scored below or just above college level on placement examinations and who did not take college preparatory classes. Students who entered BCC for the first time in fall 1986 or fall 1987 intending to obtain a degree or certificate were selected for the study. Course grades in college-level mathematics and writing were compared for students placing below, just above, and well above passing on the ASSET placement test. Study findings included the following: (1) in the writing course, students placing just higher than the passing standard tended to withdraw from class at higher rates than those who scored below passing or those who scored well above passing; (2) 27% of the students who scored below passing on the writing test circumvented remedial writing instruction, enrolled directly in the college-level writing course, and successfully completed the college-level course at a higher rate than students who first took the remedial course; (3) students who scored just above passing on the writing test, and yet took the remedial course, passed the college-level course at a higher rate t n students who did not take the remedial course first; and (4) 11% of the students who scored below passing on the mathematics placement test took no remedial courses, and, of these, 32% successfully completed their college-level mathematics course. Based on study findings, it was concluded that mandatory placement into or out of remedial course work based on placement test scores with questionable predictive validity may not be the ideal solution for students. (JMC)

RELATING COLLEGE-LEVEL COURSE PERFORMANCE TO ASSET PLACEMENT SCORES

INSTITUTIONAL RESEARCH REPORT ABSTRACT RR89-22

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August 28, 1989

INSTITUTIONAL RESEARCH
Report Abstract

Relating College-level Course Performance to ASSET Placement Scores

RR89-22 **August 28, 1989**

The current passing standards for entry-level examinations used at Broward Community College have come into question recently (RR89-09). The concern has been that the standards may not accurately distinguish between those students who are in need of preparatory instruction, and those who are not. Some have called for the implementation of a plan, whereby a certain percentage of the examinees who place below the cut scores would be permitted to enter college-level courses. Others suggest that those who score just above the passing standards are being placed into college-level courses for which they are under-prepared. Legislation already in existence allows colleges and universities to place any student into preparatory courses, if the institution determines that this would increase the student's chances for academic success.

In order to show a cause and effect relationship between these placement decisions and students' opportunities for academic success, it would be necessary to examine the performance in college-level courses of both groups of students (those just below the cut-off scores, and those just above the cut-off scores), after administering the college preparatory experience to half of each group, and withholding it from the other half. Because of the state requirement for those below cut-off scores to be placed into college preparatory classes, it would not be possible to use such an experimental design to determine what effect the lack of preparatory classes has on college-level course grades. There are, however, a small number who have circumvented the preparatory requirement. Conversely, while most of those who place just above the cut-off scores go directly into college-level classes, some are occasionally counseled into preparatory classes. The present report will examine whether students who have scored below, or just above the passing standards (who have not taken college preparatory classes) may be performing less well in college-level courses than do those who either have had college preparatory classes, or place well above the cut-off scores.

Using data from the Longitudinal Student Database, degree- or certificate-seeking students who were first-time-in-college ("FTIC") in the Fall of 1986 and the Fall of 1987 were selected, if they had scores recorded for the ASSET, and no other placement instrument. Grades received in college-level mathematics and writing were compared for students placing below, just above, and well above the corresponding ASSET cut-off scores. These categories were defined as follows. For the writing subtest, those with a score of less than 43 were "below the passing standard," those with scores from 43 through 45 were "just above the passing standard," and those with scores greater than 45 were considered "well above the passing standard." In the mathematics subtest, a score of less than 12 was "below the passing standard," from 12 through 13 was considered "just above the passing standard" and a score

greater than 13 was classified as "well above the passing standard."[1] Additionally, those students who placed below, or just above the cut-off scores were divided into two groups: those who enrolled in college preparatory classes, and those who did not. This resulted in five categories of students, which are listed below.:

1. those below the passing standard without college preparatory experience
2. those below the passing standard with college preparatory experience
3. those just above the passing standard without college preparatory experience
4. those just above the passing standard with college preparatory experience
5. those well above the passing standard

The students' placement into these categories for ASSET writing scores was then cross-tabulated with grades in ENC1101 (college-level reading), and placement on the ASSET mathematics subtest was cross-tabulated with grades in MAT1033 (college-level mathematics).[2]

The results of the analysis revealed patterns which, in general, supported both types of placement proposals described previously. In the case of ENC1101, those students placing just higher than the passing standard tended to withdraw from the course at higher rates than did those below the cut-off score, or those well above the cut-off score (see Table 1). Additionally, of the students in this category who did not elect to enroll in a preparatory class, a higher percentage either withdrew from the course, or received a "D" or "F," than among any other category (with the exception of the Fall 1986 cohort among whom the pattern was not seen in the "Withdrawn" category). Here it should be noted that the number of students in the category just above the passing standard who enrolled in ENC0020 (preparatory writing) was very small (11). For this reason, the 54% withdrawal rate, among those in the Fall 1986 cohort who had enrolled in preparatory writing, may be caused by chance. Furthermore, it seems likely that those students who are counseled into or self-select college preparatory instruction may be more deficient in the area than those who do not enroll, regardless of ASSET scores.

A finding that is somewhat disturbing, is that of those students in the Fall 1986 cohort who placed below the ASSET writing standard, 27% enrolled in ENC1101 without first taking college preparatory instruction. What is more, of those who circumvented writing preparatory instruction, 56% completed ENC1101 successfully, compared to only about 53% of those who enrolled in college preparatory courses. Oddly, of those placing just above the passing standard who enrolled in ENC1101 without preparatory writing, 37% were successful, while only 27% of those with preparatory course experience succeeded in ENC1101. Among the 1987 cohort, only about 20% of the students scoring below the cut-off score enrolled in ENC1101 without prior preparatory instruction, and of those, 45% completed the course successfully. Of those below the cut-off who enrolled in college-level writing after completion of the required preparatory instruction, almost 49% received an "A", "B", or "C". While in the expected direction, the difference is very small between the two groups. Those placing just above the cut-off who did not elect preparatory courses succeeded in ENC1101 46% of the time, while those who elected to enroll in ENC0020 achieved success in ENC1101 70% of the time (it should be noted that this represented only 7 students). The college preparatory experience does not appear to make a significant difference for those students placing below the cut-off score in writing. Apparently, in at least some cases, the students themselves may

1 The reading subtest was not considered, because of the very small number of students who go on to enroll in REA1105 (college-level reading).

2 Grades for MAT1033 were only available through Term 8891, because of the replacement of the course by MAT1034,which does not satisfy college mathematics requirement.

be better able to assess their own probability of success in college-level writing, and/or need for preparatory courses, than can the ASSET.

When grades for college-level mathematics (MAT1033) were examined, patterns similar to those seen in ENC1101 were discovered (Table 2). In both the 1986 and 1987 cohorts, a large number of examinees just above the passing standard felt the need for preparatory mathematics instruction (fully 38% of the 1986 cohort and over 37% of the 1987 cohort). Again, those in the category just above the passing standard tended to withdraw from MAT1033 at higher rates than those in any other category, especially if they did not elect to enroll in college preparatory courses. However, in the 1986 Fall cohort, a much higher percentage of those just above the cut score who did not take college preparatory mathematics were successful in MAT1033 (45%) than of those who elected to enroll in preparatory instruction (roughly 11%). This was also the case among the Fall 1987 cohort, with only about 16% of those who elected to enroll in preparatory instruction succeeding in MAT1033, compared to about 19% of those who did not. As previously noted, this may be a result of a self-selection bias. That is, those who elect to enroll in preparatory mathematics may have more severe deficiencies in the subject (regardless of placement scores) than do those who do not enroll. Additionally, informal retesting by faculty may have resulted in the counseling of severely deficient students into preparatory classes. It is not possible to determine whether the success rates would have been even lower for these students had they not enrolled in preparatory courses.

Surprisingly, of those below the computation passing standard in 1986, 11% took no preparatory courses and nearly 32% of those students who enrolled in MAT1033 succeeded. Of those who enrolled in the required preparatory course, roughly the same percentage of those enrolled in college-level mathematics were successful. These results were not the same for the 1987 cohort. Fewer students placing below the standard had bypassed preparatory instruction, and of those who did only one-fourth succeeded in college-level mathematics. Of those who had the required preparatory instruction, 46% of those enrolled in college-level mathematics were successful.

Given the findings outlined above, it appears that preparatory instruction may have become more effective over time (for those placing below cut-off scores), resulting in clearer distinctions between students who have had preparatory instruction, and those who have not. The effect of college-preparatory instruction on those just above the cut-scores is not as clear. In three of the four cross-tabulations, those in this category who did not elect to take preparatory instruction had higher rates of success when they enrolled in the college-level courses than did those with preparatory instruction. Of those just above the cut-score who elected college-preparatory, only in one case (the Fall 1987 cohort who enrolled in ENC1101) did the analysis show an advantage over the non-preparatory student, and this was based on very small numbers.

Among the findings which are only indirectly related to the purpose of this report is the large number of students who have failed either to proceed into college-level courses, or to complete them successfully. In the case of the writing subtest, nearly 74% of the Fall 1986 group, and over 77% of the 1987 group, who fell below the cut-off score had not successfully completed ENC1101 by the end of Fall 1988. Nearly 74% of the 1986 students, and almost 62% of the 1987 students who scored just above the passing standard had not successfully completed ENC1101 by the end of the Fall 1988 term. Of those in the 1986 cohort who scored well above the passing standard, nearly 49% had not successfully completed ENC1101 by the end of Fall 1988. This percentage was almost the same for the 1987 group. When college-level mathematics is considered, the percentages are even higher. Over 89% of the group

placing below the cut-off score in the 1986 cohort, and roughly 92% of the 1987 group, had not successfully completed MAT1033 by the end of the Fall 1988 term. Of those who scored just above the passing standard on the ASSET mathematics subtest, almost 79% of the 1986 group and roughly 86% of the 1987 group had not successfully completed college-level mathematics by the end of Fall 1988. While this finding is indeed discouraging, it is even more disheartening to learn that among those students who placed well above the mathematics passing standard, 75% of the 1986 group and 64% of the 1987 group had not successfully completed college-level mathematics by the end of the Fall 1988 term.

Most of the students who fall below the passing standard are not attempting college-level work at all, or at least not within the time frame examined. A lack of the skills gained in college-level writing may disadvantage student achievement in other classes, leading to poor overall academic performance. One should also consider the very small number of students (regardless of placement scores) who actually successfully complete college-level mathematics. Since only about 11% of the Fall 1986 degree-seeking students had completed MAT1033, it is not surprising to find that the three-year graduation rate for the 1986 cohort is less than 10%. It should be noted that over 13% of the 1987 cohort had already successfully completed MAT1033, an encouraging trend, which may lead to higher graduation rates for this group. A future report may examine whether there are students whose failure to graduate can be attributed solely to the lack of completion of required writing and mathematics courses.

Inasmuch as the answers to this report's original question have been addressed, they present little evidence for the hypothesis that the cut scores are excluding from college preparatory instruction students who are in need of it. Indeed, the evidence suggests that the preparatory experience does not neccessarily help students, regardless of where they place in relation to the cut-scores. The results do present evidence that the passing standards for the writing and mathematics subtests of the ASSET are not always able to predict performance in college-level corollary courses. There are students who do not exceed the passing standard, yet are able to achieve adequate grades in college-level courses, without preparatory instruction (albeit the number who circumvent the required preparatory instruction is small). At the same time, some students who score slightly above the passing standard on the ASSET feel they need the benefit of preparatory courses prior to enrollment in college-level classes. This finding suggests that a process which allows for such exceptions to the placement rule might not be detrimental to student outcomes. Indeed, such a process might increase the opportunities for students to achieve success, by relieving the student who does not require preparatory instruction (regardless of test scores) of the intellectual burden of boredom, as well as the financial burden of lengthy college enrollment. This type of flexible placement would also help to ensure that those who scarcely exceed the passing standards, and are not prepared for college-level classes, would be guided into preparatory courses. To the extent that this process is already occurring on an informal basis, it seems to be working. Mandatory placement into, or out of, college preparatory classes based on passing standards with questionable predictivity may not be the ideal solution for students.

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TABLE 1

Placement Scores by ENC1101 Grades
F-T-I-C Fall 1986

ENC1101 Grades

ASSET WRITING SCORE (CUT=43)	No ENC1101 N Row %	A N Row %	B N Row %	C N Row %	D N Row %	F* N Row %	I N Row %	W N Row %	TOTAL N Col %
< 43 (no prep)	70 58.3%	3 2.5%	10 8.3%	15 12.5%	2 1.7%	11 9.2%	1 0.8%	8 6.7%	120 12.1%
(% of ENC takers)		6.0%	20.0%	30.0%	4.0%	22.0%	2.0%	16.0%	
< 43 (W/ prep)	123 47.7%	4 1.6%	18 7.0%	49 19.0%	10 3.9%	22 8.5%	1 0.4%	31 12.0%	258 26.0%
(% of ENC takers)		3.0%	13.3%	36.3%	7.4%	16.3%	0.7%	23.0%	
43 - 45 (no prep)	20 23.0%	7 8.0%	8 9.2%	10 11.5%	5 5.7%	20 23.0%	0 0.0%	17 19.5%	87 8.8%
(% of ENC takers)		10.4%	11.9%	14.9%	7.5%	29.9%	0.0%	25.4%	
43 - 45 (W/ prep)	8 42.1%	0 0.0%	2 10.5%	1 5.3%	0 0.0%	2 10.5%	0 0.0%	6 31.6%	19 1.9%
(% of ENC takers)		0.0%	18.2%	9.1%	0.0%	18.2%	0.0%	54.5%	
Greater than 45	88 17.4%	50 9.9%	116 22.9%	94 18.5%	30 5.9%	56 11.0%	5 1.0%	68 13.4%	507 51.2%
(% of Enc takers)		11.9%	27.7%	22.4%	7.2%	13.4%	1.2%	16.2%	
TOTALS	309 31.2%	64 6.5%	154 15.5%	169 17.1%	47 4.7%	111 11.2%	7 0.7%	130 13.1%	991 100%
		9.4%	22.6%	24.8%	6.9%	16.3%	1.0%	19.1%	

* Includes grade of XF

76.67% of those below the cut score (no prep) hadn't successfully completed ENC1101 after 7 terms
72.48% of those below the cut score (W/ prep) hadn't successfully completed ENC1101 after 7 terms
27.03% of those below the cut score who enrolled in ENC1101 took NO prep

71.26% of those just above the cut score (no prep) hadn't successfully completed ENC1101 after 7 terms
84.21% of those just above the cut score (W/ prep) hadn't successfully completed ENC1101 after 7 terms
14.10% of those just above the cut score who enrolled in ENC1101 took prep

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Placement Scores by ENC1101 Grades
F-T-I-C Fall 1987

ENC1101 Grades

ASSET WRITING SCORE (CUT=43)	No ENC1101 N Row %	A N Row %	B N Row %	C N Row %	D N Row %	F* N Row %	NR/I N Row %	W N Row %	TOTAL N Col %
< 43 (no prep)	62 62.0%	3 3.0%	5 5.0%	9 9.0%	4 4.0%	6 6.0%	4 4.0%	7 7.0%	100 8.5%
(% of ENC takers)		7.9%	13.2%	23.7%	10.5%	15.8%	10.5%	18.4%	
< 43 (W/ prep)	144 49.3%	9 3.1%	23 7.9%	40 13.7%	14 4.8%	26 8.9%	3 1.0%	33 11.3%	292 24.9%
(% of ENC takers)		6.1%	15.5%	27.0%	9.5%	17.6%	2.0%	22.3%	
43 - 45 (no prep)	20 16.8%	7 5.9%	19 16.0%	19 16.0%	12 10.1%	16 13.4%	3 2.5%	23 19.3%	119 10.1%
(% of ENC takers)		7.1%	19.2%	19.2%	12.1%	16.2%	3.0%	23.2%	
43 - 45 (W/ prep)	7 41.2%	0 0.0%	1 5.9%	6 35.3%	0 0.0%	2 11.8%	0 0.0%	1 5.9%	17 1.4%
(% of ENC takers)		0.0%	10.0%	60.0%	0.0%	20.0%	0.0%	10.0%	
Greater than 45	81 12.5%	74 11.5%	123 19.0%	137 21.2%	35 5.4%	68 10.5%	13 2.0%	115 17.8%	646 55.0%
(% of Enc takers)		13.1%	21.8%	24.2%	6.2%	12.0%	2.3%	20.4%	
TOTALS	314 26.7%	93 7.9%	171 14.6%	211 18.0%	65 5.5%	118 10.1%	23 2.0%	179 15.2%	1174 100%
		10.8%	19.9%	24.5%	7.6%	13.7%	2.7%	20.8%	

* Includes grade of XF

83.00% of those below the cut score (no prep) hadn't successfully completed ENC1101 after 4 terms
75.34% of those below the cut score (W/ prep) hadn't successfully completed ENC1101 after 4 terms
20.43% of those below the cut score who enrolled in ENC1101 took NO prep

62.18% of those just above the cut score (no prep) hadn't successfully completed ENC1101 after 4 terms
58.82% of those just above the cut score (W/ prep) hadn't successfully completed ENC1101 after 4 terms
9.17% of those just above the cut score who enrolled in ENC1101 took prep

TABLE 2

Placement Scores by MAT1033 Grades
F-T-I-C Fall 1986

MAT1033 Grades

ASSET MATH SCORE (CUT = 12)	No Mat1033 N	Row %	A N	Row %	B N	Row %	C N	Row %	D N	Row %	F* N	Row %	NG N	Row %	W N	Row %	TOTAL N	Col %
< 12 (no prep)	155	89.1%	0	0.0%	2	1.1%	4	2.3%	3	1.7%	4	2.3%	1	0.6%	5	2.9%	174	18.1%
(% of MAT takers)				0.0%		10.5%		21.1%		15.8%		21.1%		5.3%		26.3%		
< 12 (w/ prep)	406	72.1%	10	1.8%	14	2.5%	26	4.6%	22	3.9%	35	6.2%	3	0.5%	47	8.3%	563	58.6%
(% of MAT takers)				6.4%		8.9%		16.6%		14.0%		22.3%		1.9%		29.9%		
12 - 13 (no prep)	15	32.6%	3	6.5%	3	6.5%	8	17.4%	0	0.0%	4	8.7%	1	2.2%	12	26.1%	46	4.8%
(% of MAT takers)				9.7%		9.7%		25.8%		0.0%		12.9%		3.2%		38.7%		
12-13 (w/ prep)	18	48.6%	1	2.7%	0	0.0%	2	5.4%	2	5.4%	6	16.2%	1	2.7%	7	18.9%	37	3.9%
(% of MAT takers)				3.6%		0.0%		7.1%		7.1%		21.4%		3.6%		25.0%		
Greater than 13	48	34.3%	5	3.6%	16	11.4%	14	10.0%	14	10.0%	21	15.0%	2	1.4%	20	14.3%	140	14.6%
(% of MAT takers)				5.4%		17.4%		15.2%		15.2%		22.8%		2.2%		21.7%		
TOTALS	642	66.9%	19	2.0%	35	3.6%	54	5.6%	41	4.3%	70	7.3%	8	0.8%	91	9.5%	960	100%
				6.0%		11.0%		17.0%		12.9%		22.0%		2.5%		28.6%		

* Includes grade of XF

96.55% of those below the cut score (no prep) hadn't successfully completed MAT1033 after 7 terms
91.12% of those below the cut score (w/ prep) hadn't successfully completed MAT1033 after 7terms
10.80% of those below the cut score who enrolled in MAT1033 took no prep

69.57% of those just above the cut score (no prep) hadn't successfully completed MAT1033 after 7 terms
91.89% of those just above the cut score (w/ prep) hadn't successfully completed MAT1033 after 7 terms
38.00% of those just above the cut score who enrolled in MAT1033 took prep

Placement Scores by MAT1033 Grades
F-T-I-C Fall 1987

MAT1033 Grades

ASSET MATH SCORE (CUT = 12)	No Mat1033 N	Row %	A N	Row %	B N	Row %	C N	Row %	D N	Row %	F* N	Row %	NG/I N	Row %	W N	Row %	TOTAL N	Col %
< 12 (no prep)	172	93.5%	0	0.0%	2	1.1%	1	0.5%	2	1.1%	5	2.7%	0	0.0%	2	1.1%	184	16.2%
(% of MAT takers)				0.0%		16.7%		8.3%		16.7%		41.7%		0.0%		16.7%		
< 12 (w/ prep)	507	77.4%	11	1.7%	20	3.1%	37	5.6%	20	3.1%	31	4.7%	0	0.0%	29	4.4%	655	57.8%
(% of MAT takers)				7.4%		13.5%		25.0%		13.5%		20.9%		0.0%		19.6%		
12 - 13 (no prep)	14	21.2%	2	3.0%	4	6.1%	4	6.1%	10	15.2%	15	22.7%	0	0.0%	17	25.8%	66	5.8%
(% of MAT takers)				3.8%		7.7%		7.7%		19.2%		28.8%		0.0%		32.7%		
12-13 (w/ prep)	21	40.4%	2	3.8%	1	1.9%	4	7.7%	3	5.8%	15	28.8%	1	1.9%	5	9.6%	52	4.6%
(% of MAT takers)				4.4%		2.2%		8.9%		6.7%		33.3%		2.2%		11.1%		
Greater than 13	41	23.3%	14	8.0%	25	14.2%	25	14.2%	9	5.1%	34	19.3%	2	1.1%	26	14.8%	176	15.5%
(% of MAT takers)				10.4%		18.5%		18.5%		6.7%		25.2%		1.5%		19.3%		
TOTALS	755	66.6%	29	2.6%	52	4.6%	71	6.3%	44	3.9%	100	8.8%	3	0.3%	79	7.0%	1133	100%
				7.7%		13.8%		18.8%		11.6%		26.5%		0.8%		20.9%		

* Includes grade of XF

98.37% of those below the cut score (no prep) hadn't successfully completed MAT1033 after 4 terms
89.62% of those below the cut score (w/ prep) hadn't successfully completed MAT1033 after 4 terms
7.50% of those below the cut score who enrolled in MAT1033 took no prep

84.85% of those just above the cut score (no prep) hadn't successfully completed MAT1033 after 4 terms
86.54% of those just above the cut score (w/ prep) hadn't successfully completed MAT1033 after 4 terms
37.35% of those just above the cut score who enrolled in MAT1033 took prep