The Effect of Recency of Prerequisite Course on the Success Rates in MATH Courses

Research question: For students who have completed a Mt. SAC math prerequisite course to move on to the next level math course, will the recency of the prerequisite course affects the success of the higher level math course?

Study framework: Students who successfully completed a prerequisite course at Mt. SAC to be eligible for and enrolled in MATH50, MATH51, MATH71, MATH110, MATH130, MATH180 in Fall 2006 for the first time and received a valid grade are included in this study. Students who have taken more than one math course from the list during the fall 2006 were excluded.

Recency Count : RECENCY of prerequisite course taken is calculated in this study by counting one Summer term or one Spring term prior Fall 2006 as "one term prior", giving consideration that majority of students might not take classes in summer short term. Prerequisite courses taken in Fall 2005 are counted as "two terms prior" and those taken in Summer 2005 or earlier are counted as "three terms or more prior".

Results

The following table shows the enrollment count and percentage of this Fall 2006 cohort in target math courses by the recency of their Mt. SAC math prerequisite courses. Overall, 80% of this cohort has successfully completed the prerequisite course one term prior taking the Fall 2006 target math courses. MATH180 has the highest percent of students who completed the prerequisite one term prior (96%) while MATH110 and MATH130 have the lowest, 69% and 72%, respectively.

Table 1

Fall 2006 MATH Course Enrollment by Recency of Prerequisite		One Term Prior		Two Terms Prior		Three Terms or More Prior		Grand Total	
COURSE	Prerequisite	#	%	#	%	#	%	#	%
MATH50	LERN49	298	86.1%	30	8.7%	18	5.2%	346	100.0%
MATH51	MATH50	457	83.5%	45	8.2%	45	8.2%	547	100.0%
MATH71	MATH51/51B	301	80.9%	32	8.6%	39	10.5%	372	100.0%
MATH110	MATH71/71B	205	69.3%	38	12.8%	53	17.9%	296	100.0%
MATH130	MATH71/71B	175	72.0%	26	10.7%	42	17.3%	243	100.0%
MATH180	MATH160	91	95.8%	3	3.2%	1	1.1%	95	100.0%
	Grand Total	1527	80.4%	174	9.2%	198	10.4%	1899	100.0%

Table 2 shows the success rates of cohort in target math courses by recency of the prerequisite. In this contingency table, no clear pattern was detected between recency of prerequisites and course success. A Chi-squared test also failed to support an association between these two variables.

Table 2

Success Rates of Fall 2006 Math Courses	Recency of Prerequisites											
	One Term Prior			Two Terms Prior			Three Terms or More Prior			Grand Total		
COURSE	Completed	Passed	Success Rate	Completed	Passed	Success Rate	Completed	Passed	Success Rate	Completed	Passed	Success Rate
MATH50	298	183	61.4%	30	16	53.3%	18	7	38.9%	346	206	59.5%
MATH51	457	191	41.8%	45	20	44.4%	45	16	35.6%	547	227	41.5%
MATH71	301	160	53.2%	32	19	59.4%	39	25	64.1%	372	204	54.8%
MATH110	205	125	61.0%	38	25	65.8%	53	26	49.1%	296	176	59.5%
MATH130	175	91	52.0%	26	10	38.5%	42	14	33.3%	243	115	47.3%
MATH180	91	47	51.6%	3	1	33.3%	1	0	0.0%	95	48	50.5%
Grand Total	1527	797	52.2%	174	91	52.3%	198	88	44.4%	1899	976	51.4%

Recency term * Success Crosstabulation

			Success		Total
			0	1	
Recency term	1	Count	731	796	1527
		% within Recency term	47.9%	52.1%	100.0%
	2	Count	83	91	174
		% within Recency term	47.7%	52.3%	100.0%
	3	Count	110	90	200
		% within Recency term	55.0%	45.0%	100.0%
Total		Count	924	977	1901
		% within Recency term	48.6%	51.4%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.660[a]	2	.160
Likelihood Ratio	3.661	2	.160
Linear-by-Linear Association	2.879	1	.090
N of Valid Cases	1901		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 84.57.