COURSE VALIDATION STUDY

Target Course: EMT 101
Prerequisite: Eligible for MATH 060

The following is statistical data on the validation of the following course prerequisite:
Eligibility for MATH 060 as a prerequisite for EMT 101.

EMT101_SUCCESS_IND * MATH 060 Eligibility Crosstabulation

Count

		MATH 060 Eligibility		Total
		N	Y	
EMT101_SUCCESS_IND	N	462	201	663
	Y	332	249	581
Total		794	450	1244

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	21.091(b)	1	.000		
Continuity Correction(a)	20.551	1	.000		
Likelihood Ratio	21.101	1	.000		
Fisher's Exact Test				.000	.000
N of Valid Cases	1244				

a Computed only for a 2x2 table
b 0 cells (.0%) have expected count less than 5. The minimum expected count is 210.17.

Chi-Square Measurement:

The *Chi-Square* measurement tests the hypothesis (*null hypothesis*) that there is *"no difference"* between the two groups. In order to reject this hypothesis and conclude that there is a statistically significant difference between the two groups Chi-Square must be greater than **3.84**. To ensure the validity of the Chi-Square test there is a minimum frequency threshold for a 2x2 table that should be obeyed. If any of the observed frequencies in the cross-tabulation table are **5 or below** than the validity of the Chi-Square measurement is questionable.

CHI-SQUARE = .000   REJECT NULL HYPOTHESIS

Fisher's Exact Measurement:

The *Fisher's Exact* measurement can be used as an alternative to the Chi-Square measurement where a large sample is difficult to obtain. In order to reject the null hypothesis and conclude that there is a statistically significant difference between the two groups Fisher's Exact must have a P-value **less than** the standard **.05**.

FISHER'S EXACT = .000   REJECT NULL HYPOTHESIS

Ratio:
The ratio to be measured is the ratio of *right response:wrong response*.
A *right response* would be nonsuccess in the prerequisite course combined with nonsuccess in the target course or success in the prerequisite course combined with success in the target course. A *wrong response* would be nonsuccess in the prerequisite course combined with success in the target course or success in the prerequisite course combined with nonsuccess in the target course. For the *study ratio* to meet the *ratio criteria* it must be greater than or equal to **2:1**.

RATIO: 462+249:332+201 = 711:533   FAILED CRITERIA

Percent Increase:
Percent increase is measured by subtracting the percent success before adjusting for the prerequisite from the percent success after adjusting for the prerequisite. For the *study percent increase* to meet the *percent increase criteria* there must be a difference greater than or equal to **10%** in the positive direction.

PERCENT INCREASE: FAILED CRITERIA
581/1244 = 47% Before Prerequisite
249/450 = 55% After Prerequisite

<u>Summary</u>

When a course has a prerequisite of eligibility for a specified level of aptitude, we have to take into consideration not only if a student has become eligible by taking the required course but also if the student has become eligible by being placed at that level of aptitude through assessment testing. Due to the recent change in assessment test formats it is difficult to get test scores prior to 2006. In this study only the most recent test scores were used to determine eligibility. As a result it is possible that there were a few students who could have been included in the "eligible" group but were not because they took the assessment test before 2006. A total sample of 100, with at least 20 students in the non-successful group for the target course is recommended. In this case the minimum requirement for a valid Chi-square test was achieved. Both the chi-square test and the Fishers Exact test reject the null hypothesis that eligibility for MATH060 is independent of success in EMT101, showing that there is statistical evidence that suggests success in EMT101 is dependent on eligibility for MATH060. MATH060 did however fail both the Ratio and Percent Increase criteria. At this time there is sufficient statistical evidence that eligibility for MATH060 is suitable as a prerequisite for EMT101.