

COURSE VALIDATION STUDY

01-03-2008

Target Course: NS 101

Prerequisite: Successful Completion of LAC 099

**The following is statistical data on the validation of the following course prerequisite:
Eligibility for ENGL 101 as a prerequisite for FTV 101.**

SUCCESS_IND * LAC 099 Crosstabulation

Count

		LAC 099		Total
		NO	YES	
SUCCESS_IND	NO	116	30	146
	YES	408	167	575
Total		524	197	721

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.232(b)	1	.040		
Continuity Correction(a)	3.815	1	.051		
Likelihood Ratio	4.426	1	.035		
Fisher's Exact Test				.048	.024
N of Valid Cases	721				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 39.89.

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 = 4.232

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 = .048

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: $116+167:408+30 = \mathbf{283:438}$

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

$575/721 = 79.75\%$ Before Prerequisite

$167/197 = 84.77\%$ After Prerequisite

Summary

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 total sample is sufficient (721) and the number in the non-successful group is above the recommended level (146). Both the chi-square test and the Fishers Exact test reject the null hypothesis that successful completion of LAC 099 is independent of success in NS 101, showing that there **is** statistical evidence that successful completion of LAC 099 is necessary for success in NS 101. Successful completion of LAC 099 fails the Ratio and Percent Increase criteria. At this time there is statistical evidence that successful completion of LAC 099 is suitable as a prerequisite for NS 101, however, the failure of the Percent Increase and Ratio criteria suggests that there is not enough evidence to warrant the implementation of such a prerequisite. A new analysis with additional data is recommended at a later date in order to increase sample size.