Research Briefs from the Office of Research and Planning
Library Student Learning Outcomes (SLO) Assessment

Overview: In spring 2010, the Crafton Hills College Library administered a collaboratively developed Information Literacy form to assess student understanding and knowledge of literacy skills following a one hour orientation. Accordingly, the Library developed the following learning outcome:

- SLO 3 – Students who participate in orientations will demonstrate the knowledge and skills necessary to use CHC Library resources.

A was developed by library faculty to evaluate the measurement of student's knowledge of research materials. The students were ranked according to the post assessment scores with the following classifications:
- Unacceptable 0-6 correct answers, students have minimal knowledge of how to conduct library research
- Fair 7-8 correct answers, students have adequate knowledge of how to conduct library research
- Excellent 9-10 correct answers, students have superior knowledge of how to conduct library research

In order to help with the process of learning how SLOs work, the following brief provides an example of setting criteria and the use of results (see Figure 1).

Methodology: A pre-post assessment was developed to assess student knowledge of literacy skills after the Orientation. The ten-question multiple-choice pre/post assessment was administered to the students at the beginning of the orientation and at the end to determine their knowledge level of literacy skills prior to and following the orientation.

Effect Size and Statistical Significance. The effect size statistic is commonly used in meta-analyses. A meta-analysis uses quantitative techniques to determine the average effect of a given technique. One method of interpreting effect size was developed by Jacob Cohen. Jacob Cohen defined "small," "medium," and "large" effect sizes. He explained that an effect size of .20 can be considered small, an effect size of .50 can be considered medium, and an effect size of .80 can be considered large. Effect size is calculated by dividing the difference of the two means by the pooled standard deviation. It is important to mention that the number of students in each group does not influence Effect Size; whereas, when statistical significance is calculated the number of students in each group does influence the significance level (i.e. "p" value being lower than .05). Accordingly, using Cohen as a guide, a substantial effect would be .20 or higher.

Sample: In spring 2010 the instrument was completed by a total of 42 students. No identifying information from individual students was collected. Two assessments were excluded from the results because the post assessment was not complete.

Findings: Overall, 55% of the students answered 7 or more questions correctly on the post-test as opposed to 18% of the students in the pre-test (See Table 1).

Table 1: Pre-Post Orientation Assessment Grid

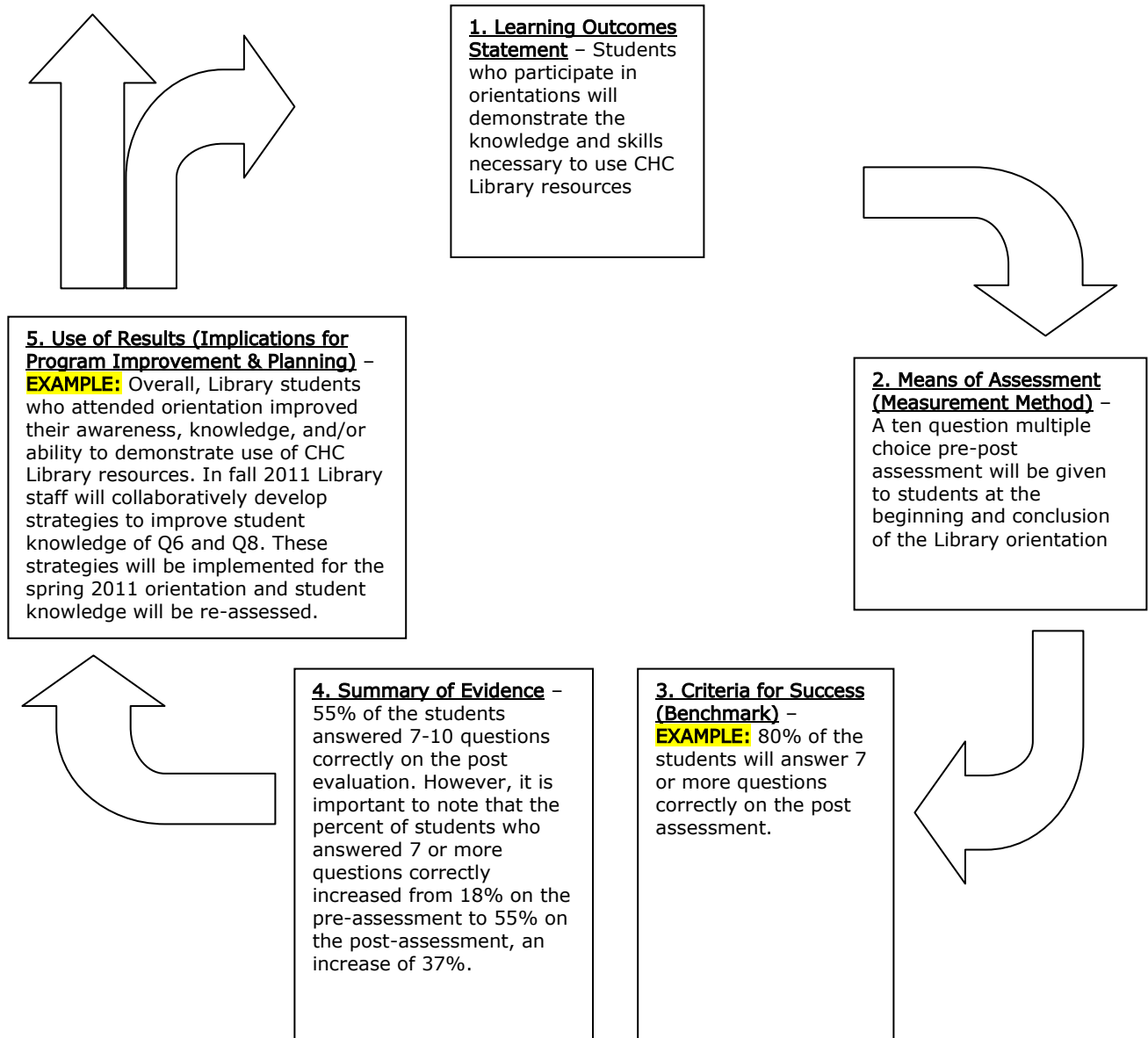| Proficiency Level	# of correct answers	Pre-test				Post-test			
		# of students	%	# of students	%	# of students	%	# of students	%
Unacceptable 0-6 correct	0	1	2.5			0	0.0		
	1	2	5.0			1	2.5		
	2	1	2.5			1	2.5		
	3	5	12.5	33	82.5	5	12.5	18	45
	4	5	12.5			4	10		
	5	9	22.5			4	10		
	6	10	25.0			3	7.5		
Fair 7-8 correct	7	2	5.0	6	15	8	20	16	40
	8	4	10.0			8	20		
Excellent 9-10 correct	9	1	2.5	1	2.5	4	10	6	15
	10	0	0.0			2	5		

Referring to Table 2, the question with the highest rate of knowledge improvement is question 1, students were statistically significantly (p=<.001) and substantially (ES=.90) more likely to answer this question correctly following the orientation (53% to 90%).

Questions 6 and 8 had a negative effect size, illustrating that fewer students answered the questions correctly on the post-test than on the pre-test. On the pre-assessment, 28% of the students answered question 6 correctly with only 23% answering correctly on the post-test. Similarly, the percentage of students who answered question 8 correctly decreased by 10%, from 63% on the pre-test to 53% on the post-test.

Table 2: Means, Standard Deviations, Effect Size and 95% Confidence Intervals, and P Values for the Library Pre-Post Library Orientation Assessment

Question	Pre-Assessment			Post-Assessment			Effect Size & 95% CI Lower & Upper ES			
	% Correct	N	SD	% Correct	N	SD	ES	Lower	Upper	P Value
1	**.53**	40	.506	**.90**	40	.304	0.90	0.43	1.35	<.001
2	.45	40	.504	.63	40	.490	0.35	-0.09	0.79	.070
3	.53	40	.506	.70	40	.464	0.36	-0.08	0.80	.018
4	.45	40	.504	.60	40	.496	0.30	-0.14	0.74	.083
5	.53	40	.506	.58	40	.501	0.10	-0.34	0.54	.534
6	**.28**	40	.452	**.23**	40	.423	**-0.11**	-0.55	0.33	.534
7	.68	40	.474	.73	40	.452	0.11	-0.33	0.55	.421
8	**.63**	40	.490	**.53**	40	.506	**-0.20**	-0.64	0.24	.253
9	.65	40	.483	.78	40	.423	0.28	-0.17	0.71	.133
10	.55	40	.504	.55	40	.504	0.00	-0.44	0.44	1.00
Overall % Correct	.50	40	.203	.62	40	.233	0.56	0.11	1.00	.001

Figure 1: SLO Assessment Cycle Diagram for SLO 3: The CHC Library promotes an increased awareness of library resources and services.

1. Learning Outcomes Statement – Students who participate in orientations will demonstrate the knowledge and skills necessary to use CHC Library resources

2. Means of Assessment (Measurement Method) – A ten question multiple choice pre-post assessment will be given to students at the beginning and conclusion of the Library orientation

3. Criteria for Success (Benchmark) – **EXAMPLE:** 80% of the students will answer 7 or more questions correctly on the post assessment.

4. Summary of Evidence – 55% of the students answered 7-10 questions correctly on the post evaluation. However, it is important to note that the percent of students who answered 7 or more questions correctly increased from 18% on the pre-assessment to 55% on the post-assessment, an increase of 37%.

5. Use of Results (Implications for Program Improvement & Planning) – **EXAMPLE:** Overall, Library students who attended orientation improved their awareness, knowledge, and/or ability to demonstrate use of CHC Library resources. In fall 2011 Library staff will collaboratively develop strategies to improve student knowledge of Q6 and Q8. These strategies will be implemented for the spring 2011 orientation and student knowledge will be re-assessed.

Any questions regarding this report can be requested from the Office of Institutional Research at: (909) 389-3391or you may send an e-mail request to mriggs@craftonhills.edu.

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