

**Chabot College Critical Thinking FIG/Pilot Study  
Fall 2008 and Spring 2009  
Critical Thinking Assessment results**

**Purpose of the study**

The purpose of this Critical Thinking FIG/Pilot study was to determine whether a standard rubric could be used for assessing critical thinking in different disciplines and whether it would lead to a productive discussion about critical thinking across disciplines. The faculty who volunteered for the pilot study (14 in Fall 2008 and 15 in Spring 2009) were from a variety of disciplines – language arts, social science, science, math, photography, computer science, etc.

**Methodology**

The faculty in the pilot study had each written a student learning outcome about critical thinking for their course. They were given a choice of two rubrics on critical thinking to use. The first rubric was a holistic measure of critical thinking – one 5-point scale for critical thinking overall. The second rubric was a detailed measure of critical thinking – the same 5-point scale for each of five aspects of critical thinking. Faculty chose an assignment in which to assess critical thinking, and the rubric they wanted to use. They were encouraged to assess near the middle to late part of the semester. Some chose to conduct assessments both early and late in the semester in order to see progress during the semester. Faculty then assessed their students on the chosen assignments and provided the results of their assessments so they could be aggregated for the group.

**Critical Thinking Assessment results: Fall 2008 and Spring 2009**

***Holistic rubric results: one scale for critical thinking***

The Fall 2008 and Spring 2009 assessment data, aggregated across all sections and assignments in the FIG for each semester, showed the following overall (holistic) levels of critical thinking:

	<u>Fall 2008</u>	<u>Spring 2009</u>
Accomplished	29%	34%
Competent	17%    46%	34%    68%
Developing	22%	23%
Beginning	14%	9%
No Achievement	18%	0%
	100%	100%

In the Fall 2008 FIG sections, less than half (46%) were competent or accomplished in critical thinking, while in the Spring 2009 FIG sections, two thirds of the students were at the competent level or above. The lower Fall 2008 results may have been due to the inclusion of students who had not turned in the assignment in the ‘No achievement’ category, which made up 18% of all students. Since this study was piloting the use of these rubrics, it was decided to discontinue including students who had not turned in the assignment. They were not included in Spring 2009, which left no students in the “no achievement” category, which may have skewed the results upward.

So the change from 46% competent or accomplished critical thinkers in Fall 2008 sections to 68% in Spring 2009 should not be seen as an increase in critical thinking at Chabot between semesters. Not only was a smaller, more accurate group of students included in Spring 2009, this study consisted of a non-representative group of sections each semester. However, if this were a representative sample of Chabot sections, the more accurate Spring 2009 results would indicate a high level of competence on this college-wide learning outcome.

***Detailed rubric results: one scale for each of 5 aspects of critical thinking***

When the five detailed rubrics of critical thinking were assessed separately, there were some variations in the percentages who were competent or accomplished, and they varied between the semesters. In Fall 2008, again due to placing many students in the “No Achievement” category, there were fewer competent or accomplished in each rubric category than in Spring 2009. In addition, some of the lowest categories in Fall 2008 were the highest in Spring 2009, such as ‘Presenting multiple solutions’ (11% vs. 75%). However, in both semesters, almost 60 percent of the students could analyze information and synthesize ideas into a coherent whole. If these were representative sections, it might be said that Chabot is teaching these aspects of critical thinking the best. In the Spring 2009 sections, the students were the least likely to be able to apply formulas and principles, although the percentage who were competent or accomplished in Spring 2009 (57%) was still higher than in Fall 2008 (41%), so this was by no means a failure to teach this.

<u>Detailed rubrics</u>	<u>Percent Competent or Accomplished</u>	
	<u>Fall 2008</u>	<u>Spring 2009</u>
Analyzing information	56%	61%
Applying formulas or principles	41%	57%
Presenting multiple solutions	11%	75%
Drawing well-supported conclusions	25%	71%
Synthesizing ideas into a coherent whole	59%	64%

**Conclusions**

This study showed that using a common rubric for critical thinking works well across disciplines, whether a holistic or detailed rubric is used. Faculty from different disciplines were able to gain valuable insights into critical thinking from each other by having common descriptions and measures of levels of critical thinking. So this method of assessing critical thinking across disciplines has been supported by this study.

When the faculty met to discuss these results, the conversation ranged from the utility of each type of rubric to the challenge of teaching critical thinking. The discussion summaries for these more substantive discussions testify to the value for faculty in being able to discuss teaching and learning with colleagues across the campus.

Although the students and sections in this study were not necessarily representative of all sections, they do represent a variety of disciplines and levels of course. As the only cross-campus measure of critical thinking that we have at Chabot, the fact that two thirds of students in Spring 2009 were at the competent or accomplished level is something that these instructors, and the college, can be proud of.