Report on IWSLO B: Critical & Creative Thinking

 "Students will comprehend, analyze and objectively evaluate information and ideas; approach issues in new and different ways, often through synthesizing or applying information"

OBJECTIVES

Measure the extent to which Cal Maritime students meet IWSLO B.

Give recommendations for improving assessment efforts.

Give recommendations (where applicable) for improving program effectiveness.

METHODOLOGY

The Critical and Creative Thinking IWSLO was assessed using a similar rubric as in the 2011 cycle. In October 2015, faculty were asked to identify courses for which critical and/or creative thinking were learning outcomes. These faculty then provided samples of coursework for assessment. 105 artifacts were gathered from nine courses across the disciplines, representative of 9% of the student population.

Male/Female participants: 81%/19%

Upper/lower division representation: 44%/56%

Majors (students were classified by declared major, not by course number):

Representation of Majors
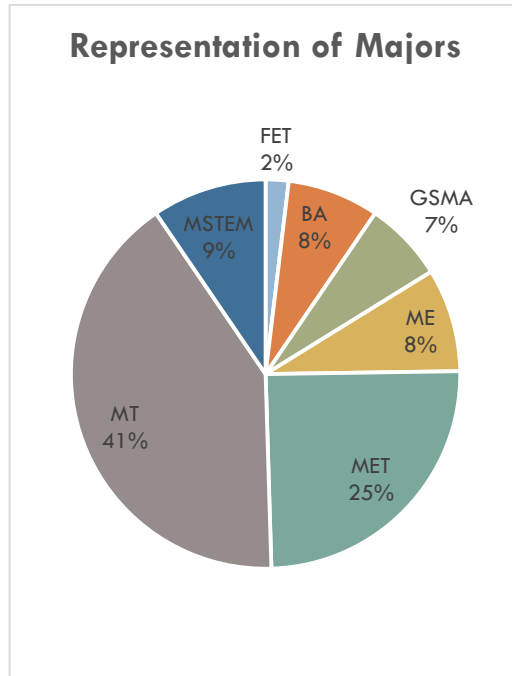
A representative sample was taken from each course (20% of the course, or 10 samples, whichever was larger). Samples were divided by gender, then selected randomly.
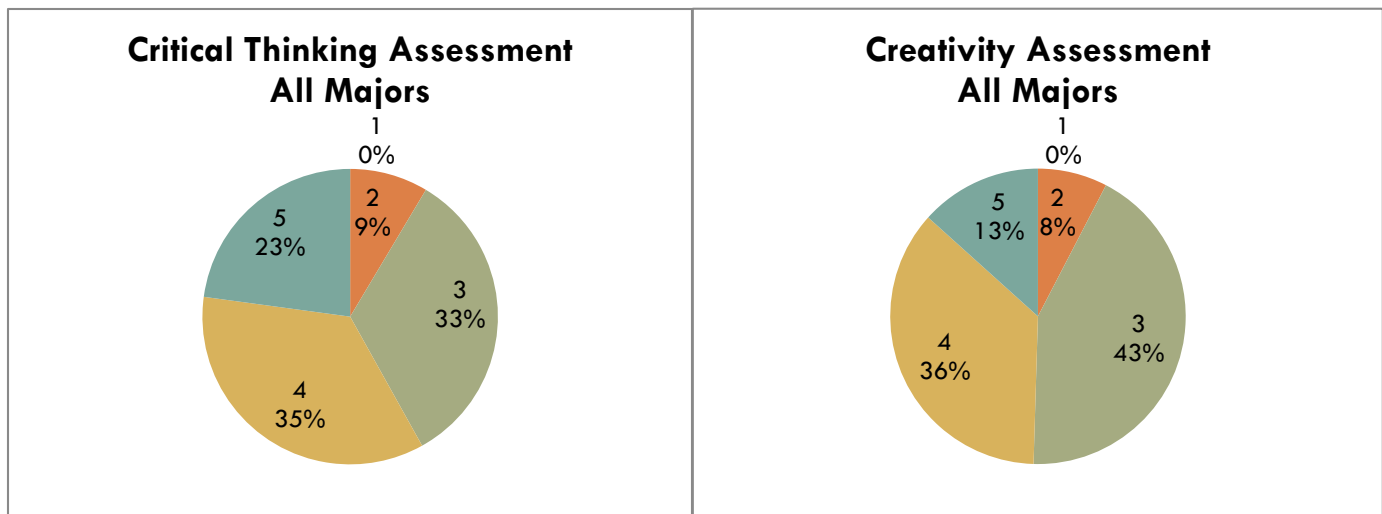
Each outcome was assessed with a rubric on a five point scale from 1 (Emerging) to 5 (Mastery).   There was one dimension for each of the two outcomes.
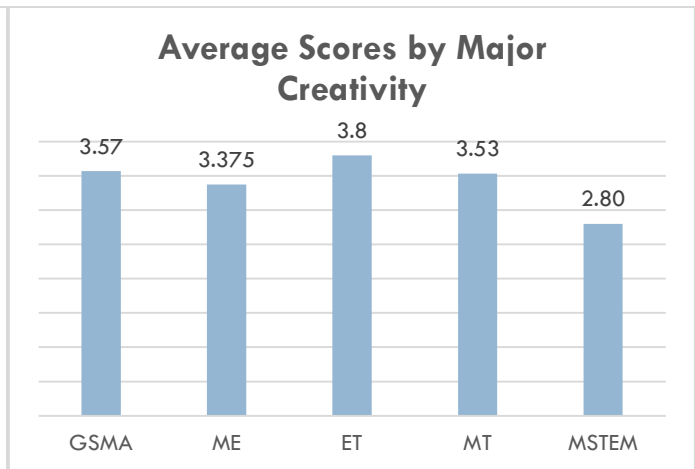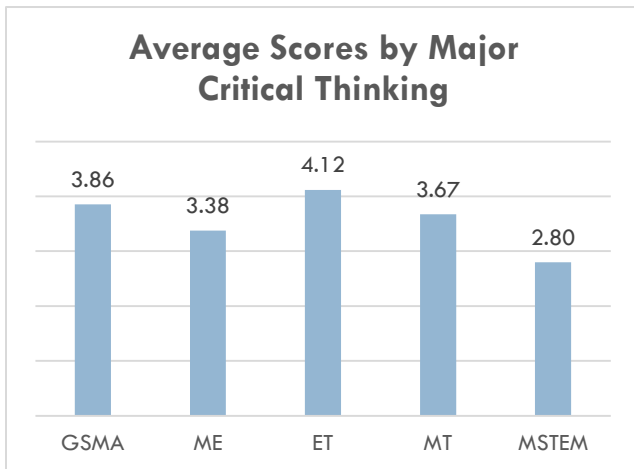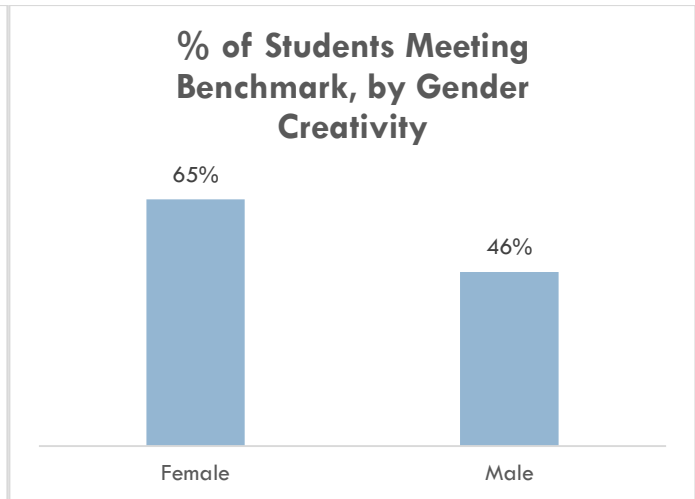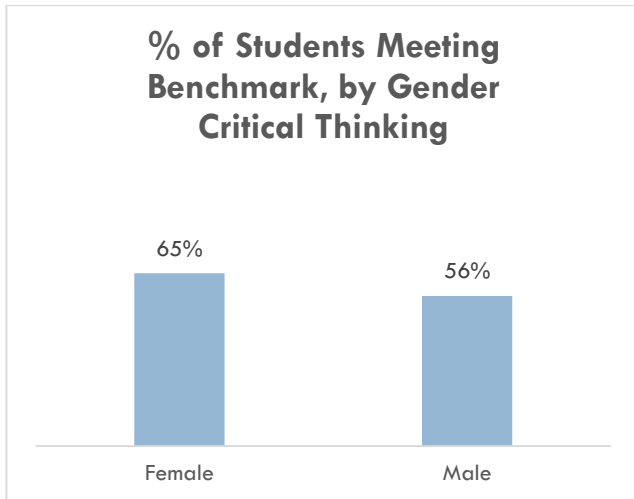
RESULTS

The benchmark was set for 50% of students to score 4 or above on a 5 point scale.

In Critical Thinking, the benchmark was attained (58%).

In Creativity, the benchmark was almost attained (49%).

**Critical Thinking Assessment
All Majors**

**Creativity Assessment
All Majors**

% of Students Meeting Benchmark, by Gender Critical Thinking

65%   56%

Female   Male

% of Students Meeting Benchmark, by Gender Creativity

65%   46%

Female   Male

Average Scores by Major Critical Thinking

3.86   3.38   4.12   3.67   2.80

GSMA   ME   ET   MT   MSTEM

Average Scores by Major Creativity

3.57   3.375   3.8   3.53   2.80

GSMA   ME   ET   MT   MSTEM

Female students met the benchmark in both areas.

Male students met benchmark in critical thinking but not in creative thinking.

Engineering Technology students scored the highest in both categories.

MSTEM students scored the lowest in both categories.

RECOMMENDATIONS

- In this cycle, there was not enough participation to be statistically significant (9% of the current student body).   A faculty survey was administered in the fall of 2014 to determine which courses included critical or creative thinking as a learning outcome. A list was generated and access to listed courses using Moodle was granted. Unfortunately, many of the artifacts collected were

inadequate for IWAC assessment. Other artifacts were collected manually, but not in proportion to actual enrollment numbers among the majors. In the future, the IWAC committee should strive to improve the system for gathering artifacts, with more emphasis on using Moodle, and perhaps implementing guidelines for faculty for determining whether an assignment is suitable.

• In this cycle, there was only one evaluator. To ensure continuity between cycles, more evaluators should be used, and norming sessions should be held.

• Objectives measure two substantially different things. These should be divided and assessed separately.

• Rubrics could be revised to incorporate additional, more specific dimensions of the subject.

• To ascertain whether student learning increases over time, capstone projects should be assessed across the board and compared with lower-division work. Lower-division artifacts should be collected near the end of the semester if the course itself is being assessed.

• A Faculty Learning Community should be established to increase use of the Campus Labs modules for the collection and presentation of assessment data.

APPENDIX A: CRITICAL & CREATIVE THINKING RUBRIC

Question 1: Does the student have unique ideas?

Emerging		Developing	Mastering	
1	2	3	4	5
Presents idea, hypothesis, or position clearly inherited or adopted, with little innovation.		Uses some innovative thinking that acknowledges, refutes, synthesizes or extends other possibilities, although some aspects may have been adopted.	Demonstrates ownership for constructing knowledge or framing original questions, integrating objective analysis and intuition in an innovative solution.	
Addresses a single source or view, failing to clarify the established idea relative to one's own unique idea.		Presents a unique position or hypothesis, though inconsistently; may be developed with some flaws or inaccuracies.	Appropriately identifies a unique position on the issue, drawing support from various contexts* and contexts* not available from assigned sources.	
Fails to present and justify one's unique opinion, idea, or hypothesis.		Presents and justifies an original position without addressing other possibilities, or does so superficially.	Clearly presents and justifies a unique view or hypothesis while qualifying or integrating contrary views or interpretations.	

Question 2: Does the student consider and integrate the ideas of others?

Emerging		Developing	Mastering	
1	2	3	4	5
Deals with a single perspective and fails to discuss or consider others' perspectives.		Begins to relate alternative views to qualify analysis and solution.	Addresses others' perspectives and additional diverse perspectives and contexts* drawn from outside.	
Uses absolutist or black-and-white thinking.		Roughly integrates multiple viewpoints and comparisons of ideas or perspectives.	Has fully integrated perspectives from a variety of sources; uses any analogies effectively.	
Adopts a single idea or limited ideas with little question		May investigate and integrate ideas but in a limited way.		