Assessment of Critical Thinking Institutional Learning Outcome (ILO)

This is a summary of the work completed by the University from summer 2013 to winter 2015 in the first effort to design an ILO rubric, assess upper-division student work across the colleges, and use the results to improve student learning. The effort also helped establish the process for other ILOs.

First ILO Assessment Faculty Team Formed: CSU East Bay conducted a one-year pilot during the 2013-14 academic year focused on the critical thinking Institutional Learning Outcome (ILO). Nineteen faculty representing all colleges teaching upper-division GE and/or upper-division courses in the major with a critical thinking learning outcome collaborated to develop a critical thinking rubric which was then applied to a course assignment. They consequently reviewed the results of the assessment and the process as a group to support subsequent assessment projects.

Support Provided: As this was the first of a number of expected projects, a critical thinking support team was established that was led by Sally Murphy, the Senior Director of Undergraduate Studies and General Education. The team’s role was to guide the key project decisions and respond to faculty input along the way. The GE Subcommittee was identified as the appropriate University group to assess student work for upper division critical thinking GE assignments, and the ILO Subcommittee was identified as the right group to assess upper division non-GE assignments from courses with a critical thinking Program Learning Outcome (PLO). Both subcommittees had and continue to have faculty leadership and membership.
Assessment process: Both subcommittees used a newly adopted electronic learning assessment platform, Blackboard Outcomes, a tool that had earlier been evaluated, selected, and implemented at the request of faculty.

There were three sets of assessments completed. In winter, 2014, the GE Subcommittee conducted norming sessions followed by the assessment of 27 artifacts from five courses.

The next two assessments were completed by the ILO Subcommittee which also conducted a norming session prior to their assessments. The first evaluation in winter 2014 assessed 64 student work samples from 14 courses. The second assessment was conducted in winter 2015 with 67 student samples from 6 classes.

Faculty Surveyed: To obtain initial feedback about progress during the fall 2013, faculty were surveyed on their experience with the rubric development and the secondary assessment process using the new Enterprise Survey tool in Blackboard Outcomes. Eleven survey questions were asked, including perceptions about the level of difficulty with the Blackboard Outcomes process for secondary review of student work, the impact on teaching and learning, and suggestions to improve
the process. The results were generally positive, as shown by the survey results on teaching and learning below.

**Project faculty Survey Results: Over 70% Positive Impact on Teaching and Learning with use of rubric**

**Faculty Provided Feedback:** A meeting was conducted with project faculty and the support team in winter 2014 at which faculty discussed their experience with the pilot and the process and provided feedback on the fall 2013 upper-division GE assignment assessment results. Their input on the process and impact on student learning was primarily positive. There was, however, a mixed reaction on whether one common critical thinking rubric could fit all of the disciplinary assignments given the subtle (or not so subtle) differences of the criteria for the range of disciplinary requirements.

Faculty also focused on the importance of:

- curriculum mapping,
- designing well-crafted assignments,
- involving faculty in all steps of the process,
- familiarizing faculty with the rubric before creating the assignment, and
- sharing the rubric with students to impact student learning and quality of assignments produced.

Feedback about the process from faculty provided a positive response to the electronic process for secondary assessment of student work as well as for the support provided, an appreciation of the opportunity for faculty collaboration, and indicated a deeper understanding of critical thinking across disciplines. Faculty insights may have impacted the assignments they aligned the rubric to during the winter 2014 quarter, as all of the criteria showed improvement from the third assessment.
Findings Presented at CSU East Bay Spring Symposium: In the spring 2014 quarter, along with other campus faculty and their CSU system colleagues, project faculty participated in a Spring Symposium on the Assessment of Core Competencies. Sally Murphy made a presentation called Closing the Loop on Assessment of Critical Thinking: CSUEB ILO Assessment Team Process and Findings. Faculty then participated in discussion groups disseminating what they learned.

Faculty also completed a reflection on the entire process, a sample of which is listed below:

"During the course of the critical thinking rubric project, the quality of work submitted by the students was much higher than in quarters past. I also feel that the rubric helped me to grade the papers more consistently and helped me to hold the students to a higher standard, which helps them to reach higher levels of achievement in their future courses."

College of Business Management Faculty, ILO Critical Thinking Assessment Project

Preliminary Analysis of Data: Data from the critical thinking assessment pilot provided greater insight into the ILO assessment process and identified key areas that needed refinement. In particular, the feedback indicated it would be valuable to: 1) strengthen the norming process to provide clarity to reviewers on how to score artifacts; 2) specify the assignment type that best lends itself to the assessment process; and 3) determine institutional goals for learning outcomes.

Review of the data revealed that reviewers conducted a wide ranging number of artifact reviews, from 3 artifacts to 22 artifacts per reviewer. Feedback indicated more training may be needed to acquaint reviewers with the rubric and its application, to enhance inter-rater reliability. The greatest range in score was observed in the Quality of Evidence and Context domains in which 32% and 34% of artifacts received score differences of 2-3 points. This assessment process would benefit from a more in-depth norming process, particularly regarding instructions for when reviewers may skip a criterion. Clarity provided through the norming process of each criterion is especially critical since student work originated from so many different programs (12 in this case, and eventually will come from all university programs). It is also important to standardize the process of assignment of artifacts to reviewers.

Analysis of the data also revealed that the appropriateness of the assignment for the assessment of institutional learning outcomes also varied. Among the nine departments that participated in one round of data collection, four of the assignments consistently scored below the institutional mean (see Table #1 below). This led to conversations regarding the most appropriate type of assignment (i.e., research papers, final presentations, lab reports) to best measure critical thinking as well as the importance of assignment instructions.
Table #1: Assignment Fit to Institutional Assessment of Learning Outcomes across Majors

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<th>Major 1 (n=7)</th>
<th>Major 2 (n=8)</th>
<th>Major 3 (n=8)</th>
<th>Major 4 (n=49)</th>
<th>Major 5 (n=26)</th>
<th>Major 6 (n=9)</th>
<th>Major 7 (n=8)</th>
<th>Major 8 (n=14)</th>
<th>Major 9 (n=9)</th>
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<td>X</td>
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This pilot also generated discussions on the learning goals for each of the institutional outcomes measured. At what level is student performance satisfactory and proficient? Contextualizing the rubric criteria and determining the learning goals is a productive next step.

**Closing the Loop on Preliminary Analysis of Data:** In an effort to reflect on the data collected from the ILO Assessment Pilot, more in-depth norming training will be provided and will focus on how to score Quality of Evidence and Context criteria. Additionally, more in-depth instructions will be given to reviewers on when it may be appropriate to skip a criterion in an assignment or even skip an entire artifact.

The data and results of the pilot have been fed back to other units on campus. The Critical Thinking Subcommittee of the Committee on Instruction and Curriculum will review the data from both the lower division and upper division assessments to guide revisions to the GE learning outcomes for Critical Thinking as we move the campus from quarters to semesters. The ILO Subcommittee will determine the expected learning outcome goals for the institution to enable markers of success and proficiency for CSUEB. Lastly, the Office of Faculty Development and Excellence in Teaching and Learning is supporting university-wide steps to be taken to improve students’ critical thinking.

**Closing the Loop on Student Achievement of the Critical Thinking ILO:** There have been a number of additional actions taken as a result of the critical thinking assessment program.

Faculty who participated in the program have reported that they have taken steps in their individual classes and across classes in their departments both to improve students’ critical thinking skills, such as adding additional content regarding critical thinking to their course content, and to improve the kinds of assignments given to elicit student work that demonstrates their critical thinking competencies.
Additional activities the University has taken to use the results to close the loop and implement improvements include:

- Based on faculty feedback, the critical thinking rubric was finalized by the support team, shared with faculty, and is scheduled to be implemented University-wide in winter 2016.

![Final Rubric to be implemented University-wide winter 2016](image)

- The results of the project helped significantly in the effective planning and implementation of four other active faculty pilot projects to assess the Institutional Learning Outcomes of written communication, diversity and social justice, information literacy, and ethics.

- Learnings from the Critical Thinking and other ILO projects are being integrated into the work of the Faculty Development Subcommittee supporting the CSUEB semester conversion – to assist faculty with development of innovative pedagogy and transformation of curriculum.

- Some faculty used parts of the process for assessment of student learning in individual programs. The College of Business and Economics and the College of Education and Allied Studies used the same critical thinking rubric to assess their Program Learning Outcomes (PLOs) in critical thinking.

- Twice quarterly workshops are being conducted for faculty on assignment design that include outcomes alignment, curriculum mapping, and use of rubrics to assess student work.

- A rubrics repository has been developed and made available to CSUEB faculty including critical thinking University and AAC&U rubrics.

- Projects to be completed by two University assessment staff accepted in to the 2014-15 WASC Assessment Leadership Academy will serve a variety of University needs related to assessment including effectively using these critical thinking results to improve student learning and implementing other changes.