



Closing the Loop University Summary Report

April 13, 2021 v2

Discussion, recommendations, and actions taken as a result of assessment of Quantitative Reasoning and Critical Thinking student learning in 2019-20 year and academic and co-academic discussions in 2020-2021 academic year to improve student learning.

INTRODUCTION

Background

[Institutional Learning Outcomes \(ILOs\)](#) are those learning outcomes that are expected of every graduate of the institution, both undergraduate and graduate, and are closely aligned with [General Education](#) requirements. ILO Assessment follows the [ILO Long Term Assessment Plan](#) which aligns the schedule of assessment for undergraduate, graduate, and general education assessment.

Following the schedule for the ILO Long Term Assessment plan, Cal State East Bay gathered student learning data in two reports titled, [University Summary Report Quantitative Reasoning, September 2020](#) and [University Summary Report Critical Thinking, September 2020](#). These data provided additional context for existing academic review discussions, analysis, and decision making to improve student learning for quantitative reasoning and critical thinking.

Purpose

This *Closing the Loop University Summary Report* summarizes the discussions, recommendations, and actions being taken by academic colleges and co-academic units to improve quantitative reasoning and critical thinking student learning.

Special Note: COVID-19 Impact

While the COVID-19 pandemic has continued to have a significant impact on the University's normal operations starting with the "Shelter in Place" order on March 17th, 2020, the University has remained committed to continue a broad range of assessment and closing the loop activities that support teaching and the assessment of student learning.

COLLEGE SUMMARIES

College of Business and Economics (CBE)

The College of Business and Economics had three one-hour virtual meetings to discuss the results of quantitative reasoning and critical thinking. All faculty members who have taught courses relevant to this Institutional Learning Outcome were invited to attend the meetings. We also used shared documents on Google Drive to collect thoughts, comments, and suggestions from faculty members in the college. While many topics have been touched on, the meetings mainly focused on the current assessment data, effectiveness of past improvement actions, and recommended course-level or program-level new improvement actions. This was indeed a good learning experience for all the faculty participants who are working so hard to improve undergraduate and graduate students' knowledge and skills on quantitative reasoning and critical thinking.

Faculty provided many insightful tips on rubrics, assessment processes, and improvement actions. For example, accounting and finance faculty suggested an improvement action of providing coordinated tutoring with the library and another improvement action of assessing 2 or more courses each time to obtain a more representative sample. They also suggested using introductory videos on mathematics as part of the course teaching material and to offer summer mathematics boot camp to improve business students' quantitative skills. Meanwhile, the faculty acknowledge the challenges of acquiring resources for implementing these ideas. Another example is that management faculty suggested more strictly enforcing the GMAT/GRE requirement, particularly the requirement on the quantitative section, which is tightly related to quantitative reasoning and critical thinking. They also suggested to create more quantitative-oriented electives so that students can have additional opportunities to further develop their quantitative thinking skills.

Faculty understood why students failed to meet some expectations. For example, although the results showed that the majority (60+%) of the assessed students demonstrated solid understanding of quantitative methods, the students as a whole failed to meet the target, that is, 70% of them will meet or exceed expectations in the learning objective for quantitative reasoning and critical thinking. The faculty carefully analyzed this outcome and found this was due to two major reasons. First, some of the students assessed joined the program prior to Fall 2018 and thus did not take a prerequisite class, which was developed to enhance students' abilities to apply statistical and mathematical tools and technologies. Second, the struggle of the students who did not meet the expectations mainly stemmed from the failure in translating a vague business problem into a clearly defined mathematical one. Indeed, when a business problem was clearly framed as those typically found in a textbook, students usually performed well. In this regard, the faculty concluded that this was more of an issue of critical reasoning rather than grasp of quantitative methods and tools.

With such a good understanding of the assessment, faculty made some insightful suggestions on new improvement actions. Management faculty members thought there might be a need to revise assessment rubrics so that the assessment results could better reflect students' knowledge and expertise in quantitative methods. They also thought it might be necessary to move the assessment from the introductory quantitative skill course to the capstone course so that the students could have more time to develop their skills in quantitative reasoning and critical thinking. Although it was time consuming, economics faculty have begun a task to incorporate finite math into the assessment course to meet the need of closing the loop. This move is actually the result of the collaborative

efforts between economics and accounting faculty, with a goal to reinforce the students' learning experience. Accounting faculty members felt the benefit of providing more detailed explanations on some important topics such as bankruptcy and earnings manipulation models, a profitability and risk analysis template, and in-class examples for the risk analysis. With these improvements incorporated into the key quantitative reasoning course, the results from the Summer 2020 assessment indicate accounting students significantly improved their performance in quantitative reasoning and critical thinking compared to the 2016 assessment results. Overall, 100% of the students meet or exceed expectations.

College of Education and Allied Studies (CEAS)

The College of Education and Allied Studies held two one-hour virtual meetings to discuss the results of quantitative reasoning and critical thinking ILO assessment data during the college's Strategic Planning Committee (SPC) meetings in November and December 2020. The committee represents faculty members from each department. Prior to the meeting, committee members were given access to shared documents on Google Drive to collect thoughts, comments, and suggestions from faculty members in their department. Faculty members were also instructed to bring anecdotal data to support the provided data. The SPC meetings mainly focused on the current assessment data and recommended course-, program-, and/or department-level improvement actions.

The formal ILO assessment data drew on a small sample. As such, it is difficult to draw any definitive conclusions. The data did suggest that along most of the dimensions of quantitative reasoning and critical thinking the scores fell below the competent level. Given the small sample size for the formal assessment, faculty incorporated anecdotal data in their discussions. This was consistent with the formal assessment results.

Based on the formal and anecdotal data, faculty made some insightful suggestions on new improvement actions. For example, all departments across the college acknowledge the need to be explicit about teaching the Critical Thinking and Quantitative Reasoning ILOs. Some examples included highlighting critical inquiry in course material and looking at in depth statistics during class.

All Masters' programs in HRT and TED have shifted focus on to Action Research that allows students to produce a practical project that is all inclusive of the skillsets focusing on Critical Thinking elements such as providing context, clear statements of position, explanation of issues, use of evidence, and drawing conclusions. In terms of Quantitative Reasoning, student clubs in KIN focus on student sessions for Finance and Evaluation Research where QR is emphasized and students have time to work with the content in a concentrated environment. Within DEL, advisory committees are focusing on explicitly supporting Critical Thinking and Quantitative Reasoning during EdD students' first and second year benchmarks.

Additional steps under consideration include strategies to ensure a more comprehensive and representative assessment strategy is implemented in the future to assess quantitative reasoning and critical thinking. As part of this, as a college we are looking at SLO/PLO/ILO alignment to ensure equity across all courses and ensuring that all ILOs are represented.

College of Letters, Arts, and Social Sciences (CLASS)

ILO data on critical thinking and quantitative reasons were shared with CLASS chairs and discussed during a Council of Chairs meeting on October 13, 2020. The Educational Effectiveness Council (EEC) representatives from

CLASS (Alexander, Nielsen) also planned and facilitated two sessions to discuss the ILO data on critical thinking with college regular and lecturer faculty. The two sessions were offered on different days and times to increase the likelihood that faculty would be available to attend one session. Alexander and Nielsen also organized one session focused on CLASS results from the survey conducted by sociology faculty about student experience during the pandemic. No CLASS faculty participated in the quantitative reasoning, but a review of program-level assessment was conducted.

The ILO sharing sessions on critical thinking lasted 50-60 minutes and were held via Zoom. Sessions began with introductions of participants and an overview of the ILO assessment process on our campus and other available institutional data. For the open discussion part of the sessions, guiding questions were provided as were slides of CLASS ILO data and NSSE data related to critical thinking. The sharing session on the CLASS survey data on student pandemic experience used a similar format with Professor Carl Stemple presenting the data and leading the discussion.

Fifteen faculty attended one of the critical thinking sessions, and eleven attended the pandemic survey results session. Faculty from the following departments were represented: AGES, art, communication, criminal justice, English, history, human development, modern languages and literatures, philosophy, political science, public administration, social work, and sociology.

Session	Focus	Attendance	Departments
Tuesday 10/27/20 12:15-1:15pm	Critical thinking results	7	English, History, Philosophy, Social Work, Sociology
Wednesday 10/28/20 4:00-5:00pm	Critical thinking results	8	AGES, Art, Criminal Justice, English, History, MLL, Philosophy, Political Science, Sociology
Tuesday 11/10/20 4:00-5:00pm	Student experience during the pandemic/CLASS results	11	Communication, Criminal Justice, English, History, Human Development, PUAD, Sociology

Both CLASS chairs and faculty who attended the open sessions were encouraged to see that CLASS students scored above the university average in all rubric criteria for the ILO in critical thinking. There was general consensus that the social science and letters disciplines in the college put a lot of emphasis on developing and supporting a point of view which takes context and multiple perspectives into account. There was also general consensus that the areas where CLASS students scored the lowest (i.e., context, alternative views) are areas where faculty members often see students struggle because it is challenging to integrate context and alternative views in support of one's own idea project. A number of themes emerged from the critical thinking sharing sessions: observations about the ILO assessment process itself; implications for teaching and learning; and ideas for closing the loop.

With regard to the campus ILO assessment process in general, many new faculty in attendance had questions about how courses are chosen for participation in ILO assessment, how assignments are developed, and how the student artifacts are assessed. This was a good opportunity to raise awareness of and interest in assessment on our campus among new faculty. Faculty also raised questions about the varied nature of assignments used for ILO assessment and how that might impact the validity of the results. It was noted that the interrater reliability for the critical thinking assessment was lower than for the written communication assessment in AY 2019-2020, underscoring wider disciplinary differences in how critical thinking is understood. A positive outcome, however, is that the critical thinking assessment sharing sessions provided an opportunity to further develop a shared vocabulary around describing and assessing critical thinking. Another issue about the assessment process that faculty raised was how to capture a fuller picture of students' critical thinking abilities since they are not always fully evident in students' written course assignments. As one of the participants noted, critical thinking can be messy. Possible approaches to further documenting critical thinking outcomes, especially at the program level, included portfolios of students' work, focus groups, and observation/analysis of classroom activities. The issue of whether the sample of student artifacts was a representative sample was also raised as was the need for assessment data to be disaggregated by race/ethnicity, gender, and PELL Grant status.

With regard to teaching and learning implications, faculty made a number of suggestions about types of assignments and activities that could address some of the weaker areas for CLASS students (i.e., context, alternative views). These suggestions included reflective assignments that encourage metacognition; wider use of the ILO critical thinking rubric (or similar disciplinary-focused rubrics) in designing, explaining, and evaluating assignments to highlight context and alternative views; individualized feedback as students develop responses to assignments that require a discussion of multiple perspectives; peer tutoring around critical thinking; and sets of scaffolded assignments to support students in understanding and communicating about views that are different from their own.

With regard to closing the loop, faculty made a number of suggestions. One suggestion was to provide disaggregated ILO results data by race/ethnicity, gender, and Pell Grant status so that we can have more insight into how to target our attempts to improve outcomes for our students in general and for particular groups where we see differences in outcomes. Another suggestion was to seek additional ways to raise awareness about and socialize new faculty into the assessment culture on campus in order to encourage wider participation across the college. Many new faculty in attendance appreciated their introduction to ILO assessment at Back to the Bay, but CLASS can do more to promote a culture of assessment in the college. Approaches will include reestablishing the CLASS EEC, increasing communication about assessment resources that are already available, and adding an assessment component to new faculty events sponsored by the college. An additional suggestion was to collaborate with SCAA so that tutors know about the critical thinking rubric and can help with campus efforts to develop shared language to talk about critical thinking across disciplines. Finally, there was interest in exploring approaches to program-level assessment of critical thinking that use portfolios and other types of assessment that can further capture students' critical thinking abilities as they develop over time in a particular discipline and through multiple formal and informal assignments/activities.

In the sharing session on CLASS data from the student experience during the pandemic survey, Professor of Sociology Carl Stemple presented the college data on behalf of the team of sociologists who developed and analyzed the data from the survey. There were 639 CLASS undergraduates who completed the survey just after final exams in spring 2020. As in the larger sample, students reported high levels of depression and difficulty concentrating, leading to more challenges academically. With regard to perceived support, Latinx and African American students reported feeling less supported than other groups, for example, thinking they could not reach out to professors when they encountered academic or other difficulties that impacted their learning. Another area of concern uncovered in the survey was students reporting various kinds of mental health issues, trying to find support on campus, and being unable to do so. Faculty at the session discussed what actions we could take based on these results. One suggestion was to add links to campus resources in all BlackBoard courses and in Bay Advisor. Related to this is the idea for a single platform where students could book appointments for tutoring, advising, counseling, basic needs intake, and other campus resources. Another suggestion was to adjust expectations in terms of what is pedagogically possible (*e.g.*, reducing the amount of content in a course, being supportive in feedback and grading), given the severe challenges many of our students and faculty continue to face.

Dr. Stemple and others are planning for another survey on student pandemic experience during this academic year. In related research, Dr. Elizabeth McGuire from the Department of History is developing a focus group protocol as part of her integrative student success pilot, which is looking at student need and supporting student agency in accessing campus resources and building community. Drs. Stemple and McGuire will explore collaboration so that quantitative and qualitative data can be used to better understand and address student needs in the new social landscape we are navigating together. Other possible directions for research on experience during the pandemic included a faculty survey and comparative studies of surveys done at other universities before and during the pandemic.

No CLASS courses were included in the sample of student artifacts during the ILO assessment of quantitative reasoning (QR); however, a program-level review was conducted using annual reports, CAPR five-year reviews, and accreditation reports for departments with external accreditation. Three graduate programs in CLASS (Social Work, Public Administration, Language Pathology) have outcomes that explicitly or implicitly include quantitative reasoning. All three programs assess these outcomes on an annual basis using a range of assessment tools: national exams, program comprehensive exams, PLO essays, field instructor evaluations, course assignments, and exit surveys. All three departments report high levels of achievement on their outcomes related to quantitative reasoning, with 81%-95% of students reaching the expected outcome. The Departments of Social Work and Speech, Language, Hearing Sciences reported specific closing the loop actions to provide additional support for meeting quantitative reasoning outcomes (*e.g.*, creation of a new course, providing access to additional training/practice modules). At the undergraduate level, five programs have implicit or explicit quantitative reasoning outcomes: anthropology, communications, environmental studies, sociology, speech pathology and audiology. None of these programs have assessed their quantitative reasoning outcome since semester conversion. More generally, the program-level review revealed that CLASS departments approach quantitative reasoning in a variety of ways. Since the campus rubric describes different aspects of quantitative reasoning, there are

opportunities for CLASS departments to align with parts of the rubric for the next round of QR assessment at the program and university level.

College of Science (CSCI)

The College of Science held two virtual 1.5 hour meetings, one each for Quantitative Reasoning and Critical Thinking, for discussion of the results. Additionally, comments were collected via shared Google docs. The entire faculty was invited with efforts made such that each department be represented by at least one faculty member. The discussions were a way of educating faculty about the ILO's, the rubrics, and the processes behind the assessments. For instance, with respect to Quantitative Reasoning, the rubric categories "Limitations" and "Implications" were discussed. We also discussed the overlap of Quantitative Reasoning and Critical Thinking in the context of the College of Sciences, particularly in disciplines that are data driven. The question was raised as to how assessment is being conducted at the community colleges, given that the majority of our students are transfer students. Concerns were raised that the majority of data collected for the Quantitative Reasoning assessment came from students majoring in a College of Science program which may bias the results if used to understand the whole CSUEB undergraduate population.

Faculty offered examples of practices at the course and curriculum levels that are working well in terms of supporting students in their growth with respect to these ILO's. In Physics, for example, students now take two full years of Advanced Lab, which provides tremendous opportunity to develop Critical Thinking skills. A strategy being used in a lower division Physics lecture and lab course is the use of flow charts to guide the student through revising their mental models as they work to integrate their experimental results with theories. Another strategy that has proven useful in a Statistics course is having students peer-review each other's work and identifying what makes sense to them and what doesn't. This reveals the "holes" in the logic to the students being reviewed and helps the reviewing internalize the elements of a strong argument.

Faculty acknowledged challenges. Students find significant results and make the calculations, but are challenged with understanding the implications of their data. Questions were raised as to how student confidence and time devoted may especially negatively impact the "Limitations" and "Implications" items in Quantitative Reasoning. Unlike with the assignments used for the Written Communication assessment, most of the assignments used for Quantitative Reasoning and Critical Thinking were not iterative so students did not have the chance to improve upon it with feedback. Also, for those assignments that were in class, students had less time to mentally process and make use of the arguably higher order thinking skills. It was noted that areas of weakness for our students were also areas with fewer assignments assessed, i.e. more faculty chose not to assess these rubric elements so perhaps they may not be routinely included in instruction and assessment. Several faculty noted a gap between their expectations and those of the students with respect to what constitutes mastery. Students are unlikely to know what Critical Thinking is or feel empowered to do it. They often have the elements but not a framework to connect the dots and logic. This has been observed with written analyses of physics concepts as well as mathematical proofs.

Given the identified success and challenges, the discussion lent itself to some opportunities for action. Faculty felt a move toward assessing learning outcomes through the curriculum would allow us to better assess the longevity of the knowledge and skills attained. Biological Sciences is planning to implement this at the program level by assessing a given topic at at least three points in the curriculum. Health Sciences has a similar plan in mind.

Although challenging, we have begun a project to connect content in Quantitative Reasoning (B4) classes with other classes in CSCI that apply these techniques and concepts so that they can inform one another and reinforce the experience for students. For instance, we will start integrating projects that use data from psychology and biochemistry experiments in Calculus I. Another suggestion was to improve faculty's knowledge of the Quantitative Reasoning and Critical Thinking ILO's and rubric elements to expand its use, inform backward design, and presumably better prepare students. Expanding the practice of approaching quantitative reasoning assignments from an interactive approach, as is often done with writing assignments, was also suggested. By increasing the number of "open-ended experiments", i.e those in which the result is not already known, in which students participate, we should enhance skills in the interpretation/implication/analysis categories. A suggestion was made to help students better understand expectations with respect to Critical Thinking through use of more structured and explicit assignments. For example, arguments could be developed using the Claim/Evidence/Reasoning framework with an added piece asking for alternative viewpoints or other plausible outcomes or explanations and why these can be excluded. The discussion explored if more academic support could be provided around Critical Thinking, e.g. tutoring, as is available for writing and quantitative reasoning at SCAA and Math Lab. Additionally, the possibility of a course in critical thinking for science students or workshops, similar to that of the Math bootcamps, was discussed.

Graduate Studies

The [University Summary Report: Quantitative Reasoning for Graduate Programs](#) and the [University Summary Report: Critical Thinking for Graduate Programs](#) were posted on the Office Graduate Studies site and linked to the main university assessment site in December 2020. Discussion of assessment results was placed on the agenda of the Graduate Advisory Council meeting held February 4th, 2021. Feedback was also requested via Google Docs, specifically from Graduate Coordinators whose programs had aligned with the Quantitative Reasoning and Critical Thinking ILOs assessed in 19-20. Per-program analysis of ILO assessment results was provided in program annual reports submitted to CAPR in October 2020.

Summary of discussion: Two main topics were discussed at the Graduate Advisory Council meeting. The first was that the assessment reporting process is unclear in a number of ways. 1) Assessment data is requested by CAPR, the college deans, and Graduate Studies. It is unclear to whom the data should be submitted. 2) It is also unclear which department contact is responsible for providing and submitting the data. In some cases, it is the department chair, in others, the graduate coordinator, and, in still others, dedicated staff. This leads to miscommunication when assessment guidance and reminders are sent out. 3) CAPR policy requires assessment data to be included in program annual reports due in October unless a program is undergoing five-year review. In that case, the data is to be included in the program self-study, due in January. This latter timing is problematic since data must be compiled by Graduate Studies and made available for discussion in Fall semester. 4) There is a lack of guidance regarding submission of assessment data by programs which undergo external accreditation. In particular, it would appear that mappings from accreditation organization criteria to university ILO criteria would be necessary.

A second topic of discussion was identification of effective closing the loop strategies for the Quantitative Reasoning and Critical Thinking ILOs assessed in 2019-2020. In particular, programs which identified ILO skill level concerns specified that those concerns could and would be addressed within the programs themselves. This is in contrast to comments made when reviewing results of the Written Communication ILO assessment from

2018-2019 where many programs suggested solutions that could be implemented at the University level. If similarities in closing the loop strategies could be identified, perhaps the university could provide support for cross-discipline programs to improve Quantitative Reasoning and Critical Thinking skills. It was noted also that providing a database of effective closing the loop strategies, whether discipline-specific or universal, would be very helpful to programs working to improve support to their students in the assessed areas.

Summary of actions proposed/implemented: In response to the first discussion topic, the Director of Graduate Studies has compiled a list of proposed assessment policy changes and provided them to the Dean of Academic Programs and Services. The Dean is working with CAPR to update their policy to streamline the assessment data submission process, make responsibilities more clear, address the submission timing issue, and suggest mappings of criteria for programs with outside accreditation. These changes should be put in place in time to improve the ILO assessment being done for 2021-2022.

In response to the second discussion item, the Office of Graduate Studies will compile a list of proposed closing the loop responses submitted by programs in annual reports for 2019-2020 assessment, and make them available on the Graduate Advisory Council Google team drive. As later cycles of assessment are completed, this database will be expanded to include additional proposed strategies.

Office of Educational Effectiveness: Institutional Learning Outcomes Assessment

Summary of discussion: The two [University Summary Reports](#) for Quantitative Reasoning and Critical Thinking posted in September, 2020, and distributed to the Educational Effectiveness Council which includes college assessment leadership for campus-wide discussions and decision making. The summary of the recommendations and actions taken is being presented and discussed during the spring 2021 term university-wide in a variety of faculty forums including EEC meetings, the ILO Subcommittee, the Committee on Academic Planning and Review (CAPR) and Academic Senate.

Summary of actions proposed/implemented:

Ongoing support for faculty includes the availability of ILO [Quantitative Reasoning](#) and [Critical Thinking](#) Assignment Guides developed by and for faculty to better craft assignments that help students demonstrate their achievement of the Institutional Learning Outcomes as they apply to specific disciplines and programs. Faculty materials are available in [The Idea Book: Teaching Tips](#) and [Rubrics Library](#) in a shared online space and organized by Institutional Learning Outcome.

Some of the discussions in the Educational Effectiveness meetings about improving the process include the desire to make the process more meaningful to faculty by assessing fewer rubric categories, having deeper discussions, and assessing these core competencies at the ILO and GE level more frequently than the five year cycle. This has come up for other core competencies and will be addressed in 2021-22 when the EEC will have a Core Competency Advisory Group examine the rubrics and provide recommended changes.

General Education

General Education (GE) assessment has progressed as a series of pilot projects that, to date, have focused on the essential skills areas (also known as the “Golden 4”) of GE. Through the GE assessment process, we’ve been able to identify the core skills and knowledge that we value most for our students, then set forth to measure what we

value. The GE assessment process has also provided faculty with the time, space, resources, and support for meaningful discussion and self-reflection, all in service of improving our students' learning experiences.

The collection and evaluation of student work for GE Area A3 Critical Thinking was delayed from 2020 due to COVID-19 issues but is scheduled to be completed by the end of Spring 2021. Two rounds of collection and evaluation (Fall 2019 and Fall 2020) were completed, and a preliminary report of these data has been provided to the Department of Mathematics and the Department of Statistics and Biostatistics. A final report will be disseminated by the end of Spring 2021.

Summary of discussion: To date, the faculty involved in the B4 evaluation discussed and made improvements to the key assignment and discussed how to increase/incentivize the number of students completing the key assignment used for the assessment. This discussion is critical, as one of the major goals for GE assessment is to increase sample sizes, in order to improve the robustness of and confidence in our results. However, it's important to note that increasing sample size necessitates increased number of assessment artifacts (more student work collected from more sections) and increased number of faculty evaluators (more faculty-hours dedicated to evaluating the assessment artifacts). APS, the Office of GE, and the participating departments are discussing and implementing ways of bolstering this phase of GE assessment.

Summary of actions proposed/implemented: As mentioned previously, the GE assessment process has catalyzed improvements in student learning experiences regardless of the "phase" of the assessment cycle for a given GE area, because the process brings faculty together to dig into how we can change what we do to make things better for our students. There have been extraordinary efforts to support students in their B4 courses, with particular emphasis on developing students' sense of belonging, building scholarly community, and engaging students in active, collaborative learning. Actions that have been implemented are in the areas of co-requisite support, embedded peer support, a community learning space (i.e., the [Math Lab](#)), and a community of practice for B4 instructors.

Student Center for Academic Achievement

As of March 2021, the SCAA received Level 2 certification for its tutoring program through the College Reading and Learning Association. The Level 2 standard is: "One of the goals of tutoring is to help students become more active, intentional, and focused learners. The Advanced Tutor facilitates this process by promoting critical thinking and reflective responses from tutees, while providing appropriate content-specific assistance." Thus, the SCAA has demonstrated that its tutors are able to facilitate critical thinking and content-specific knowledge with students. Prior to receiving Level 2 certification, records indicate that the SCAA maintained Level 1 certification for at least six years.

SCAA's tutors meet the requirements for certification through the required 10+ hours per year of training consisting of an orientation at the start of the academic year and then required monthly meetings. Monthly meetings consist of a group activity or workshop for the first hour and then a breakout session by subject area for the second hour. Supplemental Instruction leaders attend all of these trainings and have additional training with the Supplemental Instruction Coordinator regarding lesson planning and leading large groups of students. The SCAA's next step is to work to ensure our campus colleagues are aware of the training that our tutors receive and the implications of that training with regard to developing critical thinking in tutees. The SCAA would also like to

hear more about what math and statistics courses view as critical thinking in order to include that information into the training.