University Summary Report:
Critical Thinking Assessment of Student Learning
September 29, 2020, version 2

INTRODUCTION

Special Note about COVID-19: It is important to note that a significant amount of the work referenced in this report was completed during the COVID-19 pandemic that began in the Spring of 2020 and continued in the Fall of 2020 when this report was written. This includes the collection, assessment, and analysis of student work in college discussions, and implementing college and University changes - all of which were impacted to some degree. While a moderate amount of assessment work was delayed one term, assessment efforts moved forward.

The Educational Effectiveness Committee, along with other academic committees such as CAPR and the ILO Subcommittee, supported ongoing reflection about student learning for mindful, flexible, and nimble decision making during this dynamic period. Additionally, teaching, learning, and assessment discussions and decision-making related to diversity, inclusion, and social justice issues were a critical part of academic assessment during this time.

Purpose
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 assessment schedule for undergraduate, graduate, and general education assessment.

Following the schedule for the ILO Long Term Assessment Plan, Cal State East Bay gathered recent student learning data to support the assessment of the University's Critical Thinking Institutional Learning Outcomes. These data are intended to provide additional context for existing academic review discussions, analysis, and decision making to improve student learning.

Overview of Critical Thinking
At Cal State East Bay, proficiency in critical thinking at the foundational level (GE Area A3) is demonstrated by the identification, analysis, evaluation, and presentation of arguments (deductive and inductive). Emphasis is on the understanding of fallacies and the role of language in argumentation. The primary purpose of an GE Area A3 course is to build a specific toolset that allows students to rigorously explore reasoning and its presentation. Students are required to complete their A3 course by the end of their sophomore year. Students are expected to build upon and apply these foundational critical thinking skills in their GE Area C4

Arts/Humanities and D4 Social Sciences coursework as well as in their major-level courses. Transfer students are presumed to be ready to step into upper-division Areas C4 and D4 and upper-division major-level courses which emphasize critical thinking.

METHODS

The University gathered the most current available data from several relevant sources (Table 1). Additionally, colleges integrated relevant program data into college discussions as appropriate (e.g. program reviews, college surveys).

Table 1. Sources of key data and dates of collection for ILO Critical Thinking assessment

Key Data Sources	Date
Pilot Assessment of GE A3 (Critical Thinking)	2019-2020
Assessment of Undergraduate Senior Level Student Work for ILO Critical Thinking	2019-20
Assessment of Graduate Level Student Work for ILO Critical Thinking	2019-20
Student Center For Academic Achievement (SCAA):	2019-20
Student Life at CSUEB during a pandemic: Findings from a Spring 2020 Survey	Spring 2020
National Survey of Student Engagement (NSSE)	2017
Beginning College Survey of Student Engagement (BCSSE) First Year Institutional Report, Transfer Student Institutional Report	2019
AAC&U Report: On Solid Ground	2017

Pilot Assessment of GE A3 (Critical Thinking)
Refer to the *General Education Assessment of Student Learning Area A3 Critical Thinking* report which will be posted on the GE Assessment website.

Funded Professional Development Workshops Offered to Faculty with A Course Being Assessed
Faculty with an undergraduate upper division course being assessed for the ILO of Critical Thinking were all provided clear instructions and the offer of one-on-one-support by their college and Academic Programs and Services. During the fall 2019 term, a group of cross-disciplinary faculty developed a detailed ILO Critical Thinking Assignment Guide to help faculty craft assignments that allow students to demonstrate their achievement of the ILO of critical thinking.

In the Spring 2020 term, faculty with an undergraduate upper division course being assessed for the ILO of Critical Thinking were provided the assignment guide and also offered the opportunity to attend a funded professional development workshop. The first part of the workshop was a review of general design strategies

for any assignment instructed by the Office of Faculty Development based on their Engaging Assignments video tutorial and companion handout. The second part of the workshop was faculty peer coaching on strengthening their assignment to further align it to the Critical Thinking ILO using an adapted model based on the NILOA Assignment Charrette. Four (4) faculty from the College of Letters, Arts, and Social Sciences and the College of Education and Allied Studies with an undergraduate upper division course being assessed for the ILO of Critical Thinking attended the funded professional development workshop finding the workshop creative, collaborative, and engaging. As part of their attendance, they submitted changes to pedagogy, the assignment or assessment planned as a result of the workshop.

Assessment of Undergraduate Senior Level Student Work for ILO Critical Thinking 2019- 2020
Undergraduate courses aligned to ILO Critical Thinking: Twenty-four (24) senior level course sections were aligned to the ILO of Critical Thinking (Table 2). These courses represented 16 disciplines from the four colleges: College of Letters, Arts, and Social Sciences (CLASS), College of Science (CSCI), College of Education and Allied Studies (CEAS), and the College of Business (CBE).

ILO Critical Thinking Courses Assessed 2019-20 by College			
CEAS	CBE	CSCI	CLASS
2 courses	1 course	6 courses	15 courses

Table 2. Numbers of courses assessed by college for ILO Critical Thinking 2019-20.

College	Departments Represented	# Courses Assessed
CEAS	Hospitality Kinesiology	2
CBE	Economics	1
CSCI	Health Sciences Industrial Engineering Nursing Psychology Statistics	6
CLASS	Anthropology Criminal Justice English History International Studies Philosophy Political Science Sociology	15

Faculty Assessed Student Work: For each course section being assessed, four student samples were randomly selected using Blackboard Outcomes, an electronic assessment platform within Blackboard. Each student work sample was assessed by two trained faculty assessors . Assessment and Calibration training was provided to the participating faculty representing the four colleges and Library Services. Trained faculty assessed four samples of student work from participating courses at the end of the academic year 2019-20 using the Critical Thinking rubric.

Assessment of Graduate Level ILO Critical Thinking Student Work 2019- 2020
Academic Senate policy requires that graduate programs align to at least two ILOs as specified in the ILO Long-Term Assessment Plan. Seventeen of the thirty-five graduate programs at CSUEB chose to align one or more of their Program Learning Outcomes with the Critical Thinking ILO and hence participated in assessment of that ILO in 2019-2020. Due to the wide variation in the goals of the various graduate programs with respect to the Critical Thinking ILO (e.g., use of evidence in quantitative vs. qualitative disciplines), each graduate program was asked to develop program-specific rubrics for assessing the Critical Thinking ILO. Each participating program identified one or more graduate courses in which the ILO was to be assessed, and the instructor of the course was asked to develop an assignment that could be effectively used for assessment purposes. Individual programs decided how many samples they would gather in each assessed course and also identified faculty members responsible for applying the program-specific rubrics to generate the assessment data. Preliminary results were solicited during Summer 2020. The final results of the assessment efforts are to be provided in each program's annual report to CAPR, due in October 2020.

Student Center For Academic Achievement (SCAA)
The SCAA offers academic support services to students. The SCAA 2017-18 Annual Report outlines student support provided through a variety of programs, services, and resources for faculty and students. SCAA's Writing Associates program directly supports critical thinking and critical reading, and their Supplemental Instruction peer-assisted study sessions foster critical thinking. The SCAA is a Level I certified member of the College Reading Language and Association (CRLA) and has applied for Level II certification. CRLA sets professional standards for tutors and other peer educators. Finally, the SCAA is partnering with library faculty to craft learning outcomes that can be assessed beyond CRLA's requirements.

Student Life at CSUEB during a Pandemic: Spring 2020 Survey: Carl Stempel, Sociology
CSUEB Student Covid Survey was conducted after the Spring 2020 semester from May 18, 2020 through June 1, 2020. With IRB approval, multiple invitations to participate were sent to all CSUEB undergraduates, and 1806 completed the survey, a 15% response rate. Fixed-choice questions focused on student experiences and well-being during the spring semester covering a range of topics including study conditions, academic performance, financial stress, difficulty concentrating on schoolwork, family conditions, psychological distress, resilience, social resilience, perceived support from faculty and advising staff, and attitudes towards online learning. Data was weighed to match population figures for college, gender, first generation in college, and class rank. Indexes were created for many variables with the criteria that a Principal Components Analysis found only one component with an Eigenvalue over 1.0 and that all items correlated with that component at .6 or higher. In addition two open ended questions were asked, one about students' biggest problem with online classes in Spring 2020 and one on what they would tell professors as professors prepare their online classes for Fall 2020.

National Survey of Student Engagement (NSSE) Report 2017

The National Survey of Student Engagement (NSSE) collects information from four-year colleges and universities about first-year and senior students' participation in programs and activities that institutions provide for their learning and personal development. Among other areas, the survey captures questions related to student engagement experiences with higher-order learning. The survey data is presented in comparison with peer institutions regionally and nationwide.

Beginning College Survey of Student Engagement (BCSSE) Institutional Reports, 2019

The Beginning College Survey of Student Engagement (BCSSE) collects data related to students' academic expectations and perceptions for the coming year. It is generally administered to first-year students and new transfer students towards the start of the first term they enter the University. Content collected about student engagement and experiences include learning strategies related to critical thinking. The survey data presents student responses by first generation status and self-reported previous grade levels.

RESULTS

Pilot Assessment of GE A2 (First-year Composition)

Refer to the *Area A3 Critical Thinking* GE Assessment summary posted on the GE Assessment website.

Assessment of ILO Critical Thinking Student Work at Graduation for Undergraduates 2019- 2020

Special note about academic assessment data: Comprehensive excel workbooks with results from undergraduate senior level work academic assessments completed in 2019-2020 for the ILOs of Quantitative Reasoning and Critical Thinking have been provided by Institutional Effectiveness and Research to college Associate Deans with the understanding that any data shared would be based on prior agreements about sharing academic assessment information. Only data that cannot identify a single course section or faculty member can be distributed. Additionally faculty who had their course assessed can receive the data that shows their course compared to others without identifier data and may use their own data as they see appropriate (e.g.program review, course improvement).

Student Performance Critical Thinking

The results of assessment for the six categories of student writing performance in the ILO Critical Thinking Rubric (Explanation of issues, Use of evidence, Context, assumptions, Alternative viewpoints, Statement of position, Conclusions, Implications and Consequences) ranged between 57% and 89% competent (Level 3) and fully competent (Level 4). Critical Thinking was strongest in the category of Explanation of Issues and weakest in the category of Alternative Viewpoints (Fig. 1).

Critical Thinking ILO: Full Distribution of Scores (n=191)

Category	1	2	3	4
Explanation of issues	4	17	78	92
Use of evidence	2	36	86	67
Context, assumptions	7	65	85	34
Alternative viewpoints	18	83	55	35
Statement of position	3	25	60	103
Conclusions and consequences	23	60	74	34

■ 1   ■ 2   ■ 3   ■ 4

1 Major Gaps   2 Some Gaps   3 Competent   4 Fully Competent/Exemplary
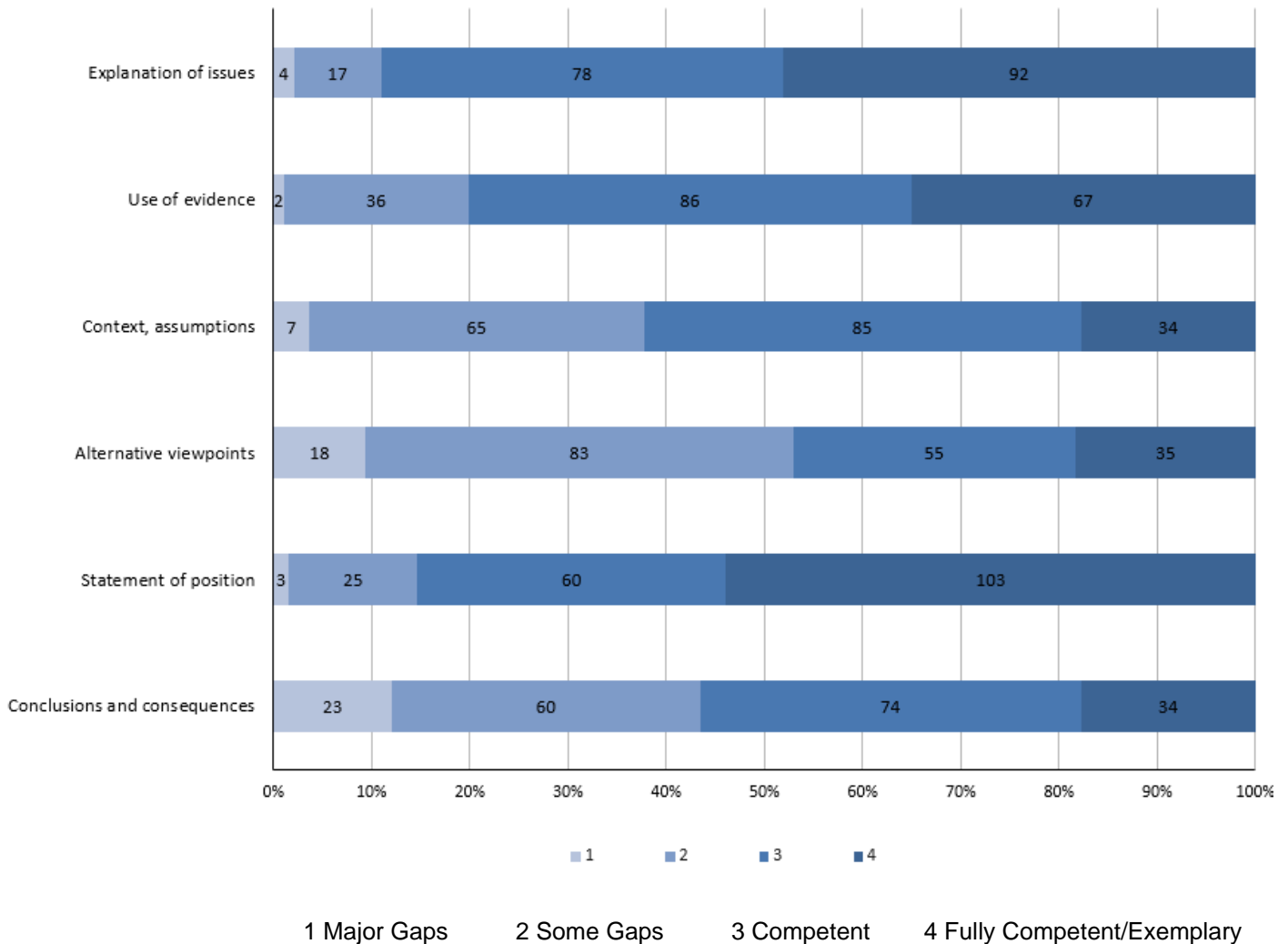
Figure 1. Student performance for critical thinking indicated by percent of students in each performance level (1 Major Gaps to 4 Fully Competent/Exemplary) on each of the six categories (Explanation of issues, Use of Evidence, Context, assumptions, Alternative viewpoints, Statement of position, and Conclusions, implications, and and consequences). N = 96 students.

In 2009, the Association of American Colleges and Universities (AAC&U) led VALUE (Valid Assessment of Learning in Undergraduate Education) a campus-based assessment approach developed and led by AAC&U. VALUE rubrics provide tools to assess students' own authentic work, produced across students' diverse learning pathways, fields of study and institutions, to determine whether and how well students are meeting graduation level achievement in learning outcomes that both employers and faculty consider essential. The VALUE rubrics include Critical Thinking and Quantitative Literacy,
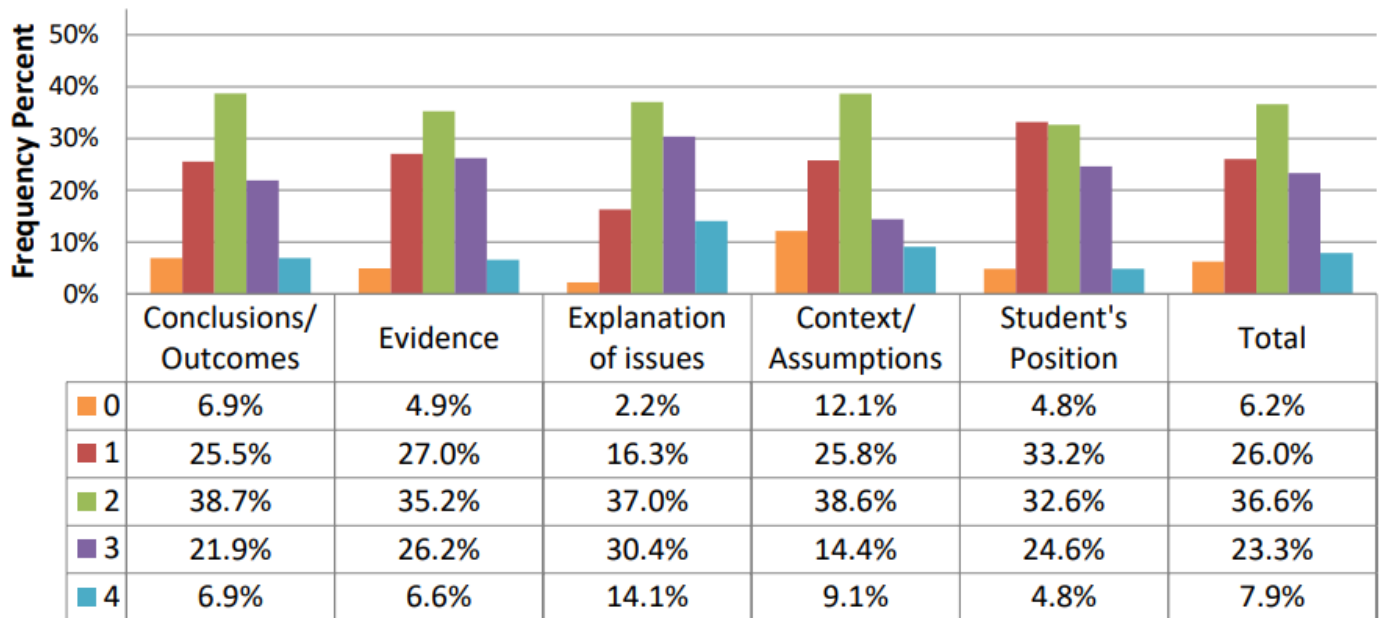
Cal State East Bay adapted best practices for rubric development and assessment using the VALUE Rubrics for Improvement of Learning and Authentic Assessment and Assessing Outcomes and Improving Achievement: Tips and Tools for Using Rubrics AAC&U publications.

As of December 2015, the rubrics had been accessed by more than 70,000 individuals from more than 5,895 unique institutions, including more than 2,188 colleges and universities. The VALUE rubrics have also been approved for use in meeting national standards for accountability established by the Voluntary System of Accountability (VSA), and are used in all regional and some professional self-study reports and reviews for accreditation. In On Solid Ground AAC&U shares the results from the first two years of data collection for the VALUE (Valid Assessment of Learning in Undergraduate Education) initiative, a nationwide project that examines direct evidence of student learning. It represents the first attempt to reveal the landscape of student performance on key learning outcomes including Critical Thinking and Quantitative Literacy—that educators, employers, and policy makers agree are essential for student success in the workplace and in life.
Adapted from https://www.aacu.org/OnSolidGroundVALUE

MSC Pilot Study Results--Critical Thinking Dimension
4-Year Institutional Score Distribution
% of student work products scored 4-0 by faculty scorers on each dimension of critical thinking

	Conclusions/ Outcomes	Evidence	Explanation of issues	Context/ Assumptions	Student's Position	Total
0	6.9%	4.9%	2.2%	12.1%	4.8%	6.2%
1	25.5%	27.0%	16.3%	25.8%	33.2%	26.0%
2	38.7%	35.2%	37.0%	38.6%	32.6%	36.6%
3	21.9%	26.2%	30.4%	14.4%	24.6%	23.3%
4	6.9%	6.6%	14.1%	9.1%	4.8%	7.9%

Note: Each work product was scored on 5 dimensions of critical thinking using a common AAC&U VALUE Rubric. See Slide 18 for rubric dimension criteria. VALUE rubrics are available at www.aacu.org/value.

Figure 2. Slide #16 from the report On Common Ground, shows score distributions for several categories similar to the ILO Critical Thinking rubric for general comparison of results. See slide 18 for description of Critical Thinking rubric dimensions.

Faculty Feedback Highlights for Critical Thinking
Complete comments from fourteen (14) faculty who aligned an undergraduate senior level assignment to the ILO of Critical Thinking and also completed the end-of-term faculty survey on patterns, the process, and the rubric are here. While there were a variety of points raised, the most evident theme related to faculty and student transition to remote learning as a result of COVID-19. In addition a few themes were:

Student Strengths	*Student Areas for Improvement*
● <u>Persisting,</u> despite significant struggles - during transition to remote learning and COVID-19. "They barely made it through this."	● <u>Use of evidence</u> and identifying appropriate sources. "Students can make an argument if you ask them to, but supporting it with evidence in the form of scholarly materials is challenging for them." ● <u>Alternative viewpoints.</u> "Students tend not to raise or address alternative viewpoints."

Assessment of Graduate Level ILO Critical Thinking Student Work 2019-2020
Graduate programs have been asked to submit the assessment data that they collected in 2019-2020 as part of their annual reports to CAPR, due October 1, 2020. That data will be compiled and summarized to provide college-level and university level views. These views will be made available by late October to prompt discussions by the departments, colleges, and the university at large. In particular, discussions will be initiated within the Graduate Advisory Council.

In addition, preliminary results and comments were solicited from the program Graduate Coordinators during Summer 2020. Coordinators were asked how their program planned to close the loop on Critical Thinking skills given current assessment data, how the university could help with these efforts, and how the assessment process could be made more effective. Two programs shared their comments on these questions and one additional program shared their full assessment report.

Themes regarding closing the loop centered on including more opportunities for students to practice critical thinking skills, and providing more coaching and feedback from instructors or peers. Themes regarding university support identified the fact that coaching students and providing additional feedback requires significant time and effort on the part of the instructors.   Support from the university in terms of adjusted workloads and provision of student assistant funding is deemed essential. In regards to improved assessment processes, coordinators requested that assessment processes be clearly defined and that contacts for questions be made available.

Student Center For Academic Achievement (SCAA)
The results of the SCAAs work includes maintaining steady usage over the 2019-20 year including post-shelter-in-place. Students know that the SCAA is a place they can turn to for support in understanding and applying their coursework. The ethos of the SCAA is that tutoring and Supplemental Instruction (SI) are discursive practices. Tutors and SI Leaders encourage the students they work with to solve problems with guidance rather than solving the problem for the student. The tutors and SI Leaders are also improving their own critical thinking skills by learning to engage with students by using pedagogies taught in monthly meetings. Implementing these pedagogies requires tutors and SI leaders to quickly assess the needs of each student they work with and adjust their tutoring and session strategies accordingly. SI and Writing Associates specifically require leaders to draft lesson plans that dovetails the professors lectures but allows for further

exploration of the subject matter to aid students in supporting their own claims and viewpoints as they develop as junior scholars.

The SCAA is partnering with the Student Success team to further develop quantitative and qualitative data reports that delineate these outcomes formally.

Student Life at CSUEB During a Pandemic Survey Findings: Carl Stempel, Sociology
While data analysis is ongoing, our most important findings thus far highlight students' high levels of both difficulty concentrating on school work and psychological distress, unequal access to basic study conditions for online classes by race and social class, and the importance for student success of perceived support from professors, peer and academic advisors, and psychological counselors.

Over 4/5 of students (82%) reported that after Covid-19 hit they found it harder to focus on schoolwork, with over 2/3 of these reporting that it was "a lot harder." Difficulty concentrating on schoolwork strongly influenced school performance (R^2 = .29), and psychological distress (measured by PHQ-9, a nine item depression screener) strongly influenced difficulty concentrating (R^2 = .31). We also found that significant numbers of students did not have access to basic study conditions such as reliable internet, a computer, and/or a quiet place to study, and that lacking these resources was strongly associated with difficulty concentrating on schoolwork. Lower income, first generation college students, and racialized minorities (African Americans, Latinx, and Middle Eastern/Central and South Asian) were less likely to possess these basic study conditions. Finally, perceived support from professors, advisors, and counselors were highly intercorrelated and strongly associated with higher academic performance and greater ability to concentrate on schoolwork. We believe this indicates that many students perceived professors, advisors, and counselors as a united web of support that helped them through this difficult semester. Encouragingly, nearly 2/3 of students (65%) agreed that they could reach out for help from their professors if they were struggling academically, and perceived professor support was strongly associated with academic performance. However, non-white students were significantly more likely than white students to disagree that they could seek help from their professors, with Latinx students more than twice as likely to disagree.

Interesting Findings from the *Student Life at CSUEB During a Pandemic Survey*
- There were significant racial and social class disparities in access to basic student conditions Spring 2020 semester. For example:
  - African American students were three times more likely than white students to disagree that they had a working computer whenever they needed it (19% to 6%)
  - Latinx students were substantially more likely than white students to disagree that they usually had a quiet place to study (55% to 36%). Comparable figures for African Americans and Middle Eastern students were 43% and 44% respectively.
  - Fifty-four percent of students from low income families (34% of our sample) disagreed that they had a quiet place to study.
- Over 4/5 of students (82%) reported that after Covid-19 hit they found it harder to focus on schoolwork, with over 2/3 of these reporting that it was "a lot harder."
- Difficulty concentrating on schoolwork (5-item index) was strongly associated with school performance (3-item index) (R^2 = .29).

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- Psychological distress (PHQ-9, 9-item depression screener) was strongly associated with difficulty concentrating on schoolwork (R^2 = .31).
- Using the PHQ-9's established cut points, 49% of CSUEB students scored in the moderate depression range or higher. This compares to 9% for U.S. adults, 30% among undergraduate students pre-Covid, and 41% among seven universities the American College Health Association surveyed between March and May, 2020.
- Sixty-five percent of students agreed that they could reach out for help from their professors if they were struggling academically
- Perceived professor support was strongly associated with students' academic performance (beta = .30 in bivariate regression with both variables scaled 0 to 1.0).
- Latinx students were 2.2 times more likely than white students (22% to 10%) to disagree that they could reach out for help from their professors. Middle Eastern (17%), African American (15%), and Asian American (15%) students were also more likely than white students to disagree that they seek help from professors.

Here is a related pre-print of an article under review for publication: *Examining the Impact of COVID-19 related disruptions, dislocations, and stressors on the academic performance of undergraduates at a diverse public university.*

National Survey of Student Engagement (NSSE) 2017
Institutional Effectiveness and Research administered the NSSE to all first-year and senior undergraduate students in the spring of 2017. CSUEB student responses to critical thinking-related NSSE questions demonstrate that our student population engages with critical thinking concepts and skills at levels generally on par with comparison institutions (see NSSE Summary) The results from the NSSE show growth in all areas of critical thinking skills and concepts from first-year to senior-level students (see NSSE Detailed Results by student level).

Beginning College Survey of Student Engagement (BCSSE) Institutional Reports 2019
Institutional Effectiveness and Research administered the BCSSE to incoming first-year and incoming transfer students in 2019. CSUEB student responses to BCSSE questions show lower levels of self-reported preparedness to think critically from both first year and transfer-level first generation students (see BCSSE Summary). In addition, first-year, first generation students reported less frequent experiences with critical thinking strategies during their senior year of high school (see BCSSE detailed results by student level).

COLLEGE DISCUSSIONS

Role of ILO Subcommittee
The ILO Subcommittee will review calibration results and faculty feedback in order to recommend potential changes to the ILO Critical Thinking rubric and the ILO Assessment process.

College/Unit Discussions
Led by associate deans, each college/unit will decide their own approach to reviewing results and conducting discussions generally following the schedules outlined in ILO Long Term Assessment Plan and EEC

Communication Plan focused on discussions in fall of 2020 and implementation in Spring 2021. This includes reviewing those results that add meaning to their discussions about student performance in critical thinking.

Support for College Discussions
Planning and meeting facilitation support is available from Academic Programs and Services and the Office of Faculty Development:

Academic Programs and Services
Maureen Scharberg, maureen.scharberg@csueastbay.edu
Julie Stein, julie.stein@csueastbay.edu
Caron Inouye, caron.inouye@csueastbay.edu

Office of Faculty Development
Jessica Weiss, jessica.weiss@csueastbay.edu

Department of Sociology
Carl Stempel, carl.stempel@csueastbay.edu

College reports have been provided to Associate Deans. As individual faculty and students are not identified in this institutional assessment, disaggregated results will not be provided in the event that individual faculty can be identified.

Possible Meeting Format
- Brief <u>overview</u> and purpose of wide-scale assessment
- <u>Presentation</u> of key critical thinking results for the college/unit
- <u>Discussion</u> in large or smaller groups: consider questions that fit your college/unit and record discussion results:

    First discuss results:
    ○ How does this information fit with our experience of students' development of critical thinking skills at Cal State East Bay?
    ○ How do the results compare with program/college for programmatic assessment of critical thinking skills?
    ○ What are our students' strengths?
    ○ What are the most noticeable gaps?

    Next, discuss possible/tentative course of action
    ○ What seems to be working well that we can further support for building student competency for critical thinking?
    ○ What can we do to improve?
    ○ How can we better meet students' needs for building critical thinking skills at critical junctures for their learning?

- <u>Summarize</u> key topics and possible action steps and review next steps.