

# Identifying Collaboration, Teamwork, and Leadership Practices on Campus

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## Abstract

In support of the newly adopted Institutional Learning Outcomes of collaboration, teamwork, and leadership (CTL) at California State University, East Bay (CSUEB) the researchers surveyed employers, students, and the course catalogue to identify the frequency of student exposure to CTL in classes and co-curricular activities and the perceived importance of these competencies. Results were that employers highly valued and that students reported frequent exposure to these skills. A literature review revealed the growing importance of CTL in education with the recognition that more work was needed to identify CTL pedagogical best practices and instruct faculty on their use.

## Keywords

collaboration, teamwork, leadership, education, teaching

## Introduction

Organizations, including businesses and universities, have long recognized the growing value of collaboration, teamwork, and leadership (CTL). A rich scholarship has developed around these concepts, providing a theoretical background for understanding each. Consistent with this widespread valuing of CTL, the California State University, East Bay (CSUEB) community, through a campus-wide, inclusive year-long process, recently identified CTL as one of its six core values, stated in the form of an Institutional Learning Outcome (ILO): “Graduates of CSUEB will be able to work collaboratively and respectfully as members and leaders of diverse teams and communities” (CSUEB Academic Senate, 2012).

Leading national educational organizations identify collaboration, teamwork, and/or leadership skills as essential for college graduates. The Association of American Colleges and Universities (AAC&U, 2005), as part of a national advocacy and research initiative called “Liberal Education and America’s Promise” (LEAP), has produced a list of essential learning outcomes for college students, one of which is teamwork and problem solving. The California State University, in Executive Order 1065, adopted the LEAP outcomes in September 2011 (Reed, 2011). In a 2013 survey of 318 employers con-

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ducted by Hart Research Associates for the AAC&U, 67% of employers stated that they wanted colleges to place more emphasis on teamwork and collaboration in diverse group settings. In the same survey, 74% of employer respondents stated that expecting students to develop the skills to conduct research collaboratively with their peers would be a new approach to learning that had the potential to help students succeed (Hart Research Associates, 2013).

The AAC&U (2009) also created a teamwork value rubric that involves assessing individuals on the following qualities: contributions to team meetings, facilitation of the contribution of team members, individual contributions made outside of team meetings, fostering of constructive team climate, and responding to conflict. Additionally, the Academic Advising and Career Education (AAACE) department at CSUEB researched skills that Bay Area employers routinely seek and produced a list of 15 frequently sought skills, one of which was teamwork and collaboration (R. Angle, personal communication, April 2010).

Faculty and administrators have also advocated for leadership training. In a report summarizing results from a study of over 50,000 students in 52 higher education institutions in the United States, the authors discussed the growing recognition in universities that leadership training was an essential component of a college education, recommending that college professors routinely instruct leadership skills, even in courses that have not traditionally focused on leadership development (Dugan and Komives, 2007).

CSUEB, now in its 52nd year as a higher education institution serving the San Francisco Bay Area, along with the 22 other CSU campuses, is in the midst of a paradigm shift regarding formal classroom pedagogy. As various job markets and industries continue to develop partnerships, collaboratives, and multi-national identities, institutions of higher education, in particular CSUEB, are grasping the growing importance of

the intentional development of collaborative, team-based learning, and leadership skill in their students (Clark, 2010; CSUEB Workforce Roundtables, 2008; Drummond, 2012; Mabry, 2011). As CSUEB campus leaders came to consensus about the importance of teaching collaboration, teamwork, and leadership, it became clear that the university was uncertain about the degree to which students were exposed to CTL on campus as well as the ways in which Bay Area employers who hired CSUEB graduates used these skills in the work place.

Given the importance of CTL for college graduates, the current study sought to: (1) identify where students are exposed to CTL instruction or experiences in coursework and in co-curricular activities at CSUEB, (2) assess the value that two groups of stakeholders, students and employers, placed on CTL competencies, and (3) make preliminary recommendations regarding CTL instruction at CSUEB based upon a review of the external literature and opinions of CSUEB students and employers of CSUEB graduates. For the purposes of this study, collaboration, teamwork, and leadership were defined as follows:

*Collaboration* involves working with others cooperatively to solve problems, make decisions, or produce something that cannot easily be produced by someone acting alone (Zaccaro, Rittman & Marks, 2001). Collaboration requires the ability to communicate openly, to value and work with diversity, and to respond constructively to conflict (Larson and LaFasto, 1989). Collaboration can be short term and informal, or it can develop over time and with more formal agreements about how outcomes will be achieved.

*Teamwork* occurs where people interact to accomplish shared goals. Teamwork involves cooperating and coordinating to get work done in an interdependent fashion, with defined roles, and clear objectives (Kouzes and Posner, 2007; Levi, 2011). Team members are often selected on the basis of the knowledge, skills, and

experience that they contribute to the work of the team. Teamwork is usually best accomplished with the influence of a leader and a team that has shared accountability for its actions. Working in teams involves sharing one's expertise and relinquishing some autonomy to work closely with others to achieve better outcomes. Teamwork requires the ability to establish productive working relationships, applying interpersonal communication skills, working well with diverse others, and responding constructively to conflict.

*Leadership* is a reciprocal influence relationship in which leaders enlist the support of others engaged with them in the accomplishment of a common goal (Bass, 1985; Bass and Avolio, 2000; Burns, 1978; Rost, 1993). Leaders are responsible for achieving a group's shared commitments and desired outcomes. To be effective, leaders must be able to communicate a vision that engages others toward a common goal. Effective leaders value all team members' contributions, and they interact with team members in ways that draw out potential contributions. Leaders communicate expectations, enroll others in the common goal, set the direction for team action, provide guidance and feedback, motivate followers, and encourage cooperation.

### Research and Findings

The current research involved three components: (a) a survey of employers who participated in job fairs on campus during October 2012, February 2013, or April 2013; (2) an online survey of CSUEB students; and (3) a survey of the CSUEB 2011-2012 course catalog. Our original research methods included the collection of faculty syllabi across colleges, but our results did not yield a sample that was either large enough or adequately representative to enable analysis of this component.

#### Employer Survey

Employer surveys were distributed to job fair participants by one of the researchers or a CSUEB Academic

Advising and Career Center employee. Job fair participants were asked to complete the survey at their convenience and return the survey to the researcher either at the completion of the job fair, in person, or through U. S. mail. The employer survey was a three-page hard-copy questionnaire that asked the employers to evaluate the importance of the abilities to collaborate, to work with a team, and to exercise leadership in their employees. The survey also included demographic questions. The assessment of CTL included both overall questions about CTL (e.g., "How important is the ability to collaborate when you consider hiring college graduates?") and questions about specific features of or skills involved in collaboration, teamwork, and/or leadership (e.g., "Rate the importance of the following competencies for success in your organization: the ability to actively listen"). The survey also included open-ended questions. Twenty-seven employers completed the survey. Employer respondents reported their type of business as follows: private company or publicly traded company (33.3%), non-profit organization (11.1%), government agency or municipality (25.9%), school, school district, college, or university (18.5%), or other (7.4%) -- (3.7% did not answer the question). Numeric results of the employer survey are presented in Table 1.

Results indicated that employers rated collaboration, teamwork, and leadership as very important competencies for their employees; each item on the questionnaire was rated higher than four (out of a maximum of five). Open-ended survey responses, described below, also revealed the importance that employers place on CTL skills and provided a vivid, real-world picture of the ways in which these skills were applied in the workplace.

#### Qualitative survey responses

In response to the question, "Which *collaboration* skills would you most like to see in college graduates?" the skills most frequently cited were good oral and written communication, strong interpersonal skills, the ability

Survey Item	Mean
1. How important is the ability to collaborate when you consider hiring college graduates?	4.63
2. How important is teamwork ability when you consider hiring college graduates?	4.85
3. How important is leadership ability when you consider hiring college graduates?	4.56
4. Rate the importance of the following competencies for success in your organization:	
4.1. Understanding the ways that cultural, gender and other differences can affect team dynamics	4.23
4.2. Collaborating within diverse groups with patience, objectivity, respect, inclusivity and equity	4.80
4.3. Crafting consensus when presented with differing values, perspectives and priorities	4.40
4.4. Identifying, mitigating, and resolving conflicts	4.64
4.5. Understanding team member roles and responsibilities	4.52
4.6. Applying the key elements of leadership, including fair allocation of work and rewards	4.38
4.7. The ability to participate in team decision-making and creative group brainstorming	4.52
4.8. The ability to actively listen	4.96
4.9. The ability to give and receive constructive feedback	4.80
4.10. Being sensitive to and appreciative of the views of others	4.68
4.11. Being comfortable in diverse social and professional setting	4.60
4.12. Being aware of one's own perspectives and biases	4.64
4.13. Understanding the implications of values and ethics for leadership, teamwork and collaboration	4.80
4.14. Leading diverse groups with patience, objectivity, respect, inclusivity, and equity	4.64
4.15. The abilities to identify strengths of team members and nurture these strengths in service of group goals	4.24

Note. n = 27. Scale for items 1-4 is as follows: 1 = not at all important; 3 = moderately important; 5 = very important.

*Table 1: Results of Employer Survey: Mean Scores for Survey Items*

to manage conflict, and valuing and respecting the different cultures and opinions of others. In response to the following, “Describe... under what circumstances employees in your organization need to collaborate,” the most frequent responses were program development, special projects, in support of the organization’s mission and goals, for product development, process improvement, making decisions under pressure, addressing client concerns, and working in client communities.

In response to the question, “Which *teamwork* skills would you most like to see in college graduates?” the skills most frequently cited were operating as a part of many teams, adaptability, working with others’ ideas, clearly communicating, and listening. In response to the following, “Describe... under what circumstances employees in your organization work in teams,” the most frequent responses were: acting quickly and effectively in the client’s best interest, intervening in a crisis, to support communities, to establish rapport, and to work with other viewpoints and diverse groups.

In response to the question, “Which *leadership* skills would you most like to see in college graduates?” the skills most frequently cited were: leading by example, high personal accountability, conflict and problem resolution, and high integrity. In response to the following, “Describe... under what circumstances employees in your organization use leadership abilities,” the most frequent responses were [when]: able to take constructive criticism from their manager, positive and hard-working, meeting the needs of the community, “stepping up” when needed, and working on multiple teams.

#### Interpretation of employer survey results

A few themes emerged from the employer survey results. First, employers reported that they valued all CTL competencies assessed in the survey. Both communication skills and listening were rated relatively highly in the numeric results and were mentioned frequently in the qualitative data. Additionally, valuing and respecting diverse cultures and opinions was

mentioned frequently. In general, collaboration and teamwork skills were valued more highly than were leadership skills. In summary, employers in our survey valued highly the multi-dimensional ways that employees get work accomplished through working together and also valued employees’ leadership behaviors whether or not in a formal leadership position.

#### Student Survey

A link to an online survey was sent to CSUEB students in the winter quarter of 2013. The survey was managed through the Office of Planning and Institutional Research on campus and the software used was Qualtrics. The survey link was sent to 2940 CSUEB students (588 freshmen, 588 sophomores, 588 juniors, 588 seniors, and 588 graduate students), which represented 17% of the total CSUEB student body in winter 2013. A total of 877 (29.2 % of the 2940) started the survey and 690 (23.5%) completed the survey. One hundred sixty of the 877 were deleted because they did not answer any CTL questions. The final sample consisted of 717 (24.4% of the 2940 recipients). The survey asked respondents to estimate how frequently they were exposed to CTL and related experiences in classes and co-curricular activities, the extent of their involvement in co-curricular activities, identification of CSUEB courses in which they were exposed to CTL, and their assessment of the degree to which their CTL experiences at CSUEB prepared them for the workforce and contributed to their personal growth. They were asked to consider all quarters in which they were enrolled at CSUEB when answering these questions. The survey also included demographic questions. Most demographic characteristics of survey respondents, and demographic characteristics of CSUEB students in general, reported for comparison purposes, are presented in Table 2. Men are underrepresented in the current study (30.4% in current sample compared to 39% at CSUEB). Although ethnicity was assessed somewhat differently for the current study compared to



the institutional data from the university, it appears that individuals identifying as Asian and as multiracial, race unknown, or other, may be overrepresented in the current sample. In the current sample participants ranged in age from 15 to 63 with a mean of 25.8. Average age of CSUEB students was 25.0 in winter quarter of 2013. Lastly, in the current study, respondents represented diverse majors and reported their current class standing as follows: 20.9% freshman; 16.3% sophomore; 16.9% junior; 21.6% senior; 22.6% graduate student; 1% open university; 0.5% missing. Results of the student survey are presented in Tables 3 and 4.

### Summary of student survey results

Results indicated that students reported exposure to CTL experiences or instruction and/or group activities frequently in their coursework; students reported at least one of these types of experiences in about 50% of courses. Participation in co-curricular activities was generally low. Our literature search did not reveal data that may provide a direct comparison to the co-curricular survey data we obtained; we could not, therefore, evaluate the typicality of the participation rates reported in the current study. However, Walpole (2003) reported on a large sample ( $n = 2417$ ) of four-year low-income college students, sampled from several universities across the United States, who were asked whether they spent any time in student clubs or groups. Forty-eight percent responded that they spent no time at all in student clubs, a result that suggests that CSUEB co-curricular participation rates may range from low to typical, although further research is needed to draw this conclusion.

Students reported that coursework generally prepared them to be effective as both team members and leaders; students further reported that coursework contributed more to their team member and leader effectiveness than did participation in co-curricular activities. Students claimed personal growth in both team member and leader effectiveness over the time

that they had attended CSUEB, and they attributed part of this growth to their experiences at CSUEB. In summary, from the student perspective the university appeared to be frequently exposing students to CTL and group activities in courses, and students perceived that their classroom experiences were at least moderately effective in preparing them as team members and leaders. Further study of CSUEB co-curricular activities is needed to determine where and how CTL exposure exists in those activities, and whether the exposure is effective in teaching CTL competencies.

Because students' ratings of the degree to which CSUEB prepares them to enter the workforce as effective leaders and team members were relatively low in comparison to the ratings that employers supplied regarding the value of these competencies, we analyzed the data on the two relevant student survey items separately for different class levels (freshman, etc.). We anticipated that students taking smaller classes (graduate students and seniors, and to a lesser extent, juniors) and freshmen at CSUEB may perceive that CSUEB prepares them relatively effectively compared to sophomores' perceptions of CSUEB's effectiveness. Each CSUEB freshman student is part of a year-long learning community infused with high impact practices that include CTL components such as common intellectual experiences, collaborative assignments and projects, and service learning. The sophomore year lacks this structure; additionally, sophomores are more likely to be in large lecture classes where CTL is less likely to be integrated into the curriculum.

One-way ANOVAs were conducted on each of the two relevant survey items, with class level as a factor. For the item, "To what extent do the following aspects at CSUEB prepare you to enter the workforce as an effective *leader*: course work?" the result of the omnibus ANOVA was non-significant  $F(5, 648) = 1.12$ ,  $p = .351$ . Mean ratings on the item were 3.62 for freshmen, 3.32 for sophomores, 3.46 for juniors,

Demographic Variable	% in Survey Sample	% in CSUEB Population
Gender		
Male	30.4	39
Female	67.0	61
Other or Missing	1.5	
Racial/Ethnic Background		
American Indian or Alaskan Native	0.4	0.3
Asian or Pacific Islander	32.5	22.6
Black	12.2	11.2
White	24.9	20.7
Multiracial	12.0	15.4*
Other or Race Unknown	14.5	
Missing	3.5	
Hispanic/Latino	23.3	22.3
International	8.1	7.5

Note: In the current study, two questions assessed ethnic background: one which asked about all backgrounds except Hispanic/Latino and a separate question asking about Hispanic/Latino background; percentages for all ethnic background except for Hispanic/Latino add up to 100. Regarding the CSUEB data, all information about ethnic background, including Hispanic/Latino, and international student status were derived from a single question.

\*This percentages represents multiracial, other, or race unknown.

*Table 2: Demographic Characteristics of Student Survey Respondents and of Students Who Attended CSUEB in Winter 2013*

3.51 for seniors, and 3.61 for graduate students. For the item, “To what extent do the following aspects at CSUEB prepare you to enter the workforce as an effective *team member*: course work?” the result of the omnibus ANOVA was significant  $F(5, 639) = 2.76, p = .018$ . Mean ratings on the item were 3.93 for freshmen, 3.53 for sophomores, 3.86 for juniors, 3.82 for seniors, and 4.03 for graduate students. For the item about team membership, pairwise comparisons of each mean with every other mean were conducted using Tukey’s HSD test. Results revealed that the mean rating produced by sophomores (3.53) was significantly lower than gradu-

ate students’ mean rating (4.03),  $p = .012$ , supporting the idea that smaller class size and/or engagement in relatively more CTL experiences may leave students with the perception that they are relatively well prepared for CTL competencies in the workplace. None of the other comparisons produced significant results. Although most comparisons on the two survey items did not produce significant differences, on both survey items, mean scores are lowest for sophomores and are highest for freshmen and graduate students.

Survey Item	Percentage
1. Please indicate the percentage (%) of courses which involved learning about or the course work required:	
1.1. Group work	50.55
1.2. Leadership	46.96
1.3. Teamwork/collaboration	55.29
1.4. Applying teamwork and leadership skills in a real-life setting	50.93
1.5. The influence of diversity (culture, race, gender, or age) upon group behavior	55.78
1.6. Identification and resolution of conflicts within groups	46.42
1.7. Collaboration and creative group brainstorming	53.36
1.8. Respecting the views of others in group settings	65.05
1.9. Importance of integrity and ethics when interacting in a group	62.72

Note: n for all items ranges from 612 to 687

Table 3: Results of Student Survey: Percentages for Survey Item #1

**Course Catalog Survey**

The course catalog survey was conducted using the CSUEB 2011-2012 catalog. Each of the departments on campus was researched separately, a total of 88 programs, scanning for the following words in course descriptions: “leadership,” “teamwork,” “collaboration,” and “group.” Table 5 illustrates the incidences of these key words in course descriptions. The courses are organized by college.

As the table shows, course catalog descriptions generally make infrequent reference to the CTL terms we searched. This result is inconsistent with the student survey results presented in Table 3, which show that student survey respondents perceived that CTL

experiences or instruction are present in the majority of courses.

**Conclusions and Recommendations for Future Research and Practice**

This study represented a first step toward understanding the prevalence of CTL instruction and exposure on college campuses, the value that students, faculty, and employers place on CTL instruction and exposure, and ultimately, the ways in which CTL may be effectively taught. The current study specifically addressed the prevalence of CTL on one college campus through surveying both students and the course catalog and the value that students at the campus and local employers place on CTL competencies. The student survey



Survey Item	Mean
2. Have you been involved in any of these co-curricular activities?	
2.1. Student Government	1.19
2.2. Academic clubs	1.30
2.3. Cultural clubs	1.28
2.4. Greek organization (fraternity/sorority)	1.17
2.5. Recreational clubs	1.22
2.6. Religious clubs	1.12
2.7. Special interest clubs (orientation team, peer advocates, etc.)	1.20
2.8. Attending intercollegiate athletic events	1.32
2.9. Attending campus entertainment events, such as comedy shows, dance performances, etc.	1.52
2.10. Attending campus intellectual events out of the classroom, such as seminars, special lecture events, etc.	1.55
2.11. Recreation and Wellness Center programs and events	1.65
3. To what extent do the following aspects at CSU East Bay prepare you to enter the workforce as an effective leader?:	
3.1. course work	3.46
3.2. co-curricular activities	3.29
4. To what extent do the following aspects at CSU East Bay prepare you to enter the workforce as an effective team member:	
4.1. course work	3.80
4.2. co-curricular activities	3.44
5. Your personal growth since entering CSU East Bay can be attributed to many factors some of which may NOT be related to your experiences at this college. PERSONAL GROWTH: Indicate the extent of your personal growth since entering this college (regardless of the college's contribution to that growth). COLLEGE CONTRIBUTION: Indicate the extent of the college's contribution (i.e., your college experience both in and out of class) to your growth.	
5.1. Personal growth in regard to becoming an effective leader	4.01
5.2. Personal growth in regard to becoming an effective team member	4.07
5.3. College's contribution to growth in regard to becoming an effective leader	3.58
5.4. College's contribution to growth in regard to becoming an effective team member	3.69

Note: n for all items ranges from 612 to 687. For question #2, 1 = never, 2 = occasionally, 3 = often. For questions #3, #4, and #5, 1 = none, 3 = moderate, 5 = very much

*Table 4: Results of Student Survey: Means for Survey Items #2 through #5*

revealed that students were reporting frequent exposure to CTL experiences in courses at CSUEB and believed they benefited from these experiences. The research with CSUEB employers revealed that CTL competencies were highly valued in our graduates. Our results corroborate the results of the Hart Research Associates survey (Hart Research Associates, 2013) which found that a majority of employers highly value teamwork and collaboration skills in their employees. Our results also extend the findings of Hart Research Associates by investigating the perceived value of many specific aspects of CTL (e.g., listening, valuing ethics, giving constructive feedback, resolving conflict, collaborating within diverse groups), and showing that a sample of CSUEB employers highly value all aspects of CTL that we surveyed. Additionally, we extended the Hart survey by collecting students' opinions regarding the effect of CSUEB instruction and experiences on workforce preparation for CTL and personal growth

in CTL. In general, our current study and our external literature review revealed that educators, students, and employers agreed that learning CTL competencies was a fundamental part of a college education.

### Next Steps for Research on CTL Instruction and Experiences on Campuses

We propose some next steps for research on CTL instruction and experiences on campuses. One next step will be to investigate the frequency with which faculty believe they are providing CTL instruction or experiences, the frequency with which the CTL experiences they provide are *intended* to teach CTL competencies (as opposed, for instance, to being used to reduce workload through requiring written papers for groups of students rather than for individual students), and the pedagogical approaches faculty are using to develop CTL competencies in students. Ultimately, research will involve identifying which CTL teaching methods

College	Leadership	Teamwork	Collaboration	Group
Science (677)	2 (.30%)	4 (.60%)	0	20 (2.3%)
Letters, Arts, & Social Sciences (1270)	9 (.71%)	5 (.40%)	6 (.47%)	62 (4.9%)
Business & Economics (273)	2 (.73%)	6 (2.2%)	1 (.37%)	3 (1.1%)
Education & Allies Studies (471)	63 (13.4%)	8 (1.7%)	8 (1.7%)	32 (6.8%)
Library (2)	0	0	0	0
Other (11)	0	0	0	5 (45.5%)

Note: "Other" includes programs not associated with a particular college such as General Studies. Numbers in parentheses next to name of college represent the total number of courses in that college. Percentages in parentheses next to incidences represent the percentages of courses in that college which include the relevant term (e.g., "leadership") in course descriptions.

Table 5: Course Catalog Survey: Incidences of the Words "Leadership," "Teamwork," "Collaboration," and "Group" in Courses, Organized by College.

are effective. Research on faculty will involve obtaining course syllabi and interviewing faculty individually. As data from faculty are obtained, these data can be compared to data from students. Students' perceptions of class experiences may or may not align with faculty perceptions. Our student survey results indicate that students perceive that CTL instruction or activities are occurring frequently in classes as indicated in Table 3, but without corresponding data from faculty, we do not know the extent to which faculty perceive that they are teaching CTL, either for the express purpose of teaching CTL or because requiring group work of students can reduce workload for faculty.

A second and related next step will be to determine the *nature* of CTL that is valued and formally taught: what are faculty members' concepts of CTL? Do faculty view collaboration, teamwork, and leadership as interrelated concepts? Do they believe that CTL processes should be primarily task-oriented ones? While collaboration, teamwork and leadership can exist independently of each other in theory and were often described this way in early CTL literature, in real-world contexts and in more modern conceptualizations, they are often linked or interrelated. For example, Foster (1989) related leadership to a communal and collaborative process, based on a dynamic relationship built of networked relationships of trust and norms of reciprocity. Collaborating with others often leads to the concept of team, as defined in the current study, as having varying degrees of reciprocal leadership processes in it. This is contrasted, for example, with the concept of leadership as an authoritarian, top down leadership style, or teamwork or collaborative working that is task-oriented without being relationship-orientation. A process in which each member does a piece of the project with little or no interaction other than his or her assigned role and/or deliverable product bears a stark contrast to what Bass (1985), Foster (1989), and Kouzes and Posner (2007) describe as an emerging, prevailing

style of leadership that is more transformational and collaborative in nature. The concept of trust was also found to be more identifiable in relationships that were more relations-oriented and participative in nature between leaders and followers (Bass, 1990; McGregor, 1960). Fukuyama (1997) noted that those who do not trust each other will only work together under a system of formal rules and regulations. Such a lack of trust will diminish the ability of the organization to grow, learn, and develop as a team. Trust, therefore, becomes a common thread that links collaboration, teamwork and leadership. Future research on the teaching of CTL would benefit from assessing the nature and level of understanding of these concepts that faculty members themselves possess.

A third next step will be to survey recent graduates of CSUEB after they have joined the workforce about their impressions of their CTL preparation. In our results, students felt moderately prepared for the workforce in regard to CTL competencies, and their perceptions of preparation varied somewhat by class level (i.e., freshman, etc.). However, those students who did not currently have jobs or who had not worked while attending CSUEB rated those items about workforce preparation based on speculation rather than on direct experience in the workforce.

#### **General Recommendations for CTL Instruction, Based on Current Study Results and Literature Review**

Recent reports published by large research groups, such as the AAC&U and the National Research Council, recommend that teaching at all levels, including university, focus on "deeper learning," which means learning that will "transfer" to new situations (AAC&U, 2005; National Research Council, 2012). Both the AAC&U and the National Research Council specify that focusing on deep learning and learning transfer is relevant to the teaching of CTL competencies, among other types of competencies.

Teaching for transfer may be achieved through various methods. For example, teaching should be done in an intentional and systematic fashion, with learning goals that are clearly defined. Results of research indicated that “learning for transfer requires knowledge that is mentally organized, understanding of the broad principles of the knowledge, and skills for using this knowledge to solve problems” (National Research Council, 2012, p. 4-25). As described above, without data from faculty, we do not yet know the extent to which CTL instruction at CSUEB is intentional and systematic.

Another teaching method that leads to deeper learning is to provide students with ample opportunity to practice new knowledge and skills. Learning is much less likely to “stick” without sustained practice (AAC&U, 2009; National Research Council, 2012). At CSUEB students report that they are exposed to CTL experiences frequently in classes, and thus may be experiencing “sustained practice.” Clearly, sustained practice is a necessary but not sufficient condition for learning; teaching methods must also be effective.

A general instructional technique or attitude that is helpful regardless of the content of the lesson is to encourage students to believe that their personal qualities can be improved, since evidence reveals that individuals who think this way perform better on cognitive tasks (Yeager and Walton, 2011). This message of malleability could be communicated to students by their professors and by personnel in centers on campus that work one-on-one with students to improve their learning and skills, such as disability services and tutoring services. For instance, some people believe that there are “born leaders,” but evidence indicates that leadership qualities can develop in individuals (Kouzes & Posner, 2002).

College faculty will need to be taught how to integrate new teaching principles into their teaching. This will require faculty development work and ade-

quate time for the faculty to receive training (National Research Council, 2012). Universities should support offices of faculty development on campuses in their training of faculty in teaching methods that may not be well known (e.g., the importance of sustained practice across courses and of clear articulation of learning goals in a course).

### Conclusions

CSUEB students report frequent exposure to CTL experiences. The researchers were surprised to learn that students appear to be gaining experience with teamwork and collaboration in classes at a much higher rate than is represented in the course catalog; CTL instruction at CSUEB is partly “hidden” at present and it is expected that this is also true on other campuses. Although our students may be experiencing “sustained practice” in CTL on campus, there is not yet sufficient evidence at CSUEB, or at universities in general, about the degree to which and the ways in which our CTL teaching practices are effective. There is a need for research that includes faculty members’ reports of frequency of CTL instruction, both “intentional” and for pragmatic reasons (e.g., reducing workload), and of faculty members’ methods for teaching CTL. Employers highly value CTL competencies and it is incumbent upon universities to prepare students for the 21<sup>st</sup> century workplace. ■■

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