Peers and Faculty as Predictors of Learning for Community College Students

Carol A. Lundberg

Abstract
This study tested the extent to which student interaction with faculty, student peer teaching situations, student organization involvement, and discussion with diverse others contributed to self-reported learning for students involved in an ethnic-specific or multicultural student organization. The Community College Student Experiences Questionnaire (CCSEQ) was used to collect data from 239 students who were involved in an ethnic-specific or multicultural student organization at 1 of 12 different community colleges. Self-reported learning was reported in the following domains: general education, intellectual skills, science and technology, personal development, and career preparation. For each of the five learning outcomes, frequent interaction with faculty was the strongest predictor in the model. Engagement with peers contributed to most outcomes, but not as strongly as student–faculty interaction. Thus, the study extends the contribution of faculty interaction to the arena outside the classroom and suggests further research about the ways student–faculty interaction benefits students at the community college level.

Keywords
faculty, student engagement, cocurricular, learning

Community colleges play an important role in American higher education, providing access to education for a large portion of the population. In 2010, community colleges enrolled 26% of full-time students in the United States and 64% of the part-time students (Aud et al., 2012). Compared with baccalaureate-granting colleges, community colleges serve a greater portion of underserved students, including racial and ethnic minorities (Provasnik & Planty, 2008), and low-income students (L. Horn & Nevill, 2008).
The diversity of the student population suggests rich opportunities for student learning via interactions with students of racial, ethnic, and socioeconomic backgrounds different from their own. Such learning has been identified as a powerful benefit of diverse environments at 4-year institutions (Gurin, Dey, Hurtado, & Gurin, 2002), but it has been rarely examined in the community college setting.

Studies of baccalaureate-granting colleges have found student engagement in the college experience to be a strong predictor of learning (Kuh, 2009), but fewer studies have focused on the role of student engagement within a community college student population (Saenz et al., 2011; Townsend, Donaldson, & Wilson, 2004). Opportunities to be fully engaged in the learning experience outside the classroom may be less available for community college students, given the multiple roles that many community college students manage, such as being a parent and a full-time worker (Cohen & Brawer, 2003). In a study of transfer students, the academic arena was where students viewed their engagement as most important, particularly because of demands on their time from family, employers, and other existing relationships (Lester, Brown Leonard, & Mathias, 2013). The work by Lester et al. (2013) focused on the classroom, not on other sources of cocurricular engagement, such as student activities and organizations. Community colleges offer many promising learning opportunities related to interactional diversity because they enroll such a diverse student population. These interactions within cocurricular activities have the potential to complicate our understanding of interactions with diverse individuals and the role in promoting engagement that leads to learning. The current study tested the extent to which faculty interaction, peer teaching, student organization involvement, and discussion with diverse others contributed to self-reported learning for students involved in at least one ethnic-specific or multicultural student organization. Students involved in such organizations comprised an ethnically diverse segment of the community college student population, and also a group that was engaged in at least one cocurricular activity. Thus, the study extends the contribution of faculty interaction to the arena outside the classroom for such students.

**Literature Review**

Engagement with faculty and collaborative learning in the classroom have been highlighted as important contributors to the engagement and learning of community college students (Braxton, Hirschy, & McClendon, 2004; Tinto, 1997, 1998), but less is known about the roles of student engagement with peers and faculty outside the classroom at the community college level. In an effort to understand the aspects of the community college that contribute to student success, Bensimon (2007) studied community college students who transferred to elite private universities and found that individual faculty and staff at the community colleges were cited by students as the primary reason for their success. She describes faculty as boosting student confidence, honing students’ academic skills, and providing necessary information about the transfer process.
Students benefit from interactions with faculty members who know and validate students. Studies have found that community college student persistence rates were enhanced by students who felt known and mentored by faculty (Barnett, 2011), who viewed faculty as committed to their welfare (Braxton et al., 2004), and who received encouragement, validation, and procedural assistance by faculty members (Deil-Amen, 2011). Examples of procedural assistance include sharing information about applying for financial aid, accessing an academic advisor, and asking for help. This assistance was especially helpful to first-generation college students because they had less access to such information in their existing social networks. Procedural assistance boosted students' confidence in their ability to effectively negotiate the college system in general and enhanced their sense of belonging.

Though faculty members play an important role in student success, community college students face some unique challenges accessing faculty. Multiple off-campus responsibilities and financial need can limit students' time available for interaction with faculty outside the classroom. Compared with 4-year college students, community college students are more likely to enroll part-time (Provasnik & Planty, 2008), commute (Cohen & Brawer, 2003) be married, maintain responsibility for the care of dependents (Berkner & Choy, 2008), and to come from low-income families (L. Horn & Nevill, 2006). Community college faculty are also limited in terms of their time available on campus. Full-time faculty carry heavy teaching loads and committee assignments with little time available for interaction with students outside the formal classroom. Part-time faculty may have even less time for students (Cohen & Brawer, 2003; Deil-Amen, 2011; Umbach, 2007), and they comprise two thirds of the faculty ranks in community colleges (Provasnik & Planty, 2008). Compared with full-time faculty, part-time instructors likely possess less social capital, such as networks within the college they might share with students, as they are not as fully integrated into the campus culture (Schuster, 2003). Community college reliance on part-time faculty has grown over the past four decades. For example, California operates the largest community college system in the country; in the late 1960s, part-time faculty comprised 27% of the faculty, but that portion increased to 67% in 2007 (Yoshioka, 2007). In the same year, part-time faculty comprised 28% of faculty at public 4-year institutions and 42% of faculty at private 4-year institutions (Provasnik & Planty, 2008). The use of part-time faculty may appear to make sense financially, but Jaeger and Eagan (2009) argued that reliance on part-time faculty makes economic sense only in the short run if it comes at the expense of student success. Despite limitations to faculty accessibility, students reported that community college faculty were more caring, helpful, and interested in their success (Bauer & Bauer, 1994; Townsend, 1995; Vaala, 1991) and more approachable than university faculty were (Townsend & Wilson, 2006). Students who viewed their faculty as accessible also reported greater satisfaction with the college experience (Jaeger & Eagan, 2009). Students in mentoring relationships with community college faculty showed increased social and academic integration with the institution, which led to goal commitment and to intent to persist (Crisp, 2009). In a study of coordinated courses where faculty taught a set of courses together as a team and students enrolled in that set of courses together, Tinto (1997, 1998) found that
social and academic integration both increased, and that the two were linked together. Organized around course assignments, students worked together in small groups. Those small groups created a productive venue for students to build relationships with one another, fostering both learning and a sense of belonging.

In addition to student interaction with faculty, student interaction with peers can also play a role in student learning. In studies of 4-year college students, learning was enhanced by student interaction with one another around academic topics, often through peer teaching (Lundberg, 2003; Treisman, 1992). Study groups and tutoring settings contributed to student learning by enabling students to clarify their own understandings by teaching others (Bonsangue & Drew, 1995; Tinto, 1997, 1998; Treisman, 1992). At the community college level, course activities that focus on collaboration and student interaction were identified as strong contributors to social integration and learning (Braxton et al., 2004). Tinto’s (1997, 1998) learning communities capitalize on peer learning, as students work in small groups that foster interaction and peer-to-peer teaching.

In studies of 4-year college students, peer interaction with diverse others predicted student learning (Gurin et al., 2002; Hu & Kuh, 2003; Johnson et al., 2007; Lundberg, 2012; Umbach & Kuh, 2006), leadership and cultural awareness (Antonio, 2001), intellectual skills, social ability, and civic interest (Chang, Astin, & Kim, 2004). Community colleges can provide a rich environment for interacting with others who are different from oneself, given the rich diversity of student enrollment. One venue for interactional diversity is engagement in student organizations. A study of baccalaureate-granting institutions found such engagement to extend learning beyond the classroom and foster social integration of students (Meyer & Kroth, 2010).

The effects of engagement on learning for students of color may be dependent on institution type. For students of color and underserved students enrolled in 4-year institutions, engagement was a stronger contributor to their learning than it was for White students (Cruce, Wolniak, Seifert, & Pascarella, 2006; Kuh, Cruce, Wolniak, Seifert, & Pascarella, 2008). In a study of community college students (Greene, Marti, & McLenney, 2008), engagement did not contribute as much to learning outcomes for African American and Hispanic students as it did for White students. Further investigation of the engagement model at the community college level is necessary, particularly in terms of its contribution to learning for students of color.

**Conceptual Framework**

Studies of community college success often use persistence, degree attainment, or transfer as metrics of success, but learning is a less commonly studied outcome (Mullin, 2012). The current study uses self-reported learning as the measure of student success, employing Kuh’s (2009) engagement framework to identify ways engagement in the college experience predicts learning for a diverse group of community college students who were members of a student organization. Kuh identifies institutional practices that increase student engagement in the college experience, particularly through interaction with peers and faculty around educationally meaningful
tasks. His model is conceptually grounded in Astin’s (1996) involvement theory, which states that students benefit more from the college experience when they are more deeply and meaningfully involved in it. Kuh’s engagement model expands on Astin’s involvement theory by focusing on the institution’s responsibility for creating an engaging college environment. Central to both involvement and engagement is the notion that student investment in the college experience, particularly with peers and faculty, pays off in terms of student learning.

Saenz et al. (2011) cited findings that engagement is related to persistence at the community college level, and they argue that engagement models should be tested more extensively on community college populations. Both Kuh’s (2009) engagement model and Astin’s (1996) involvement theory were based on 4-year college students. Saenz et al. cite the greater diversity of students and the open-access policy of the community college as two distinctive features that warrant a further study of the engagement model’s efficacy at the community college level. By employing the Community College Survey of Student Engagement (CCSSE), designed specifically to measure engagement elements of the community college student experience, Saenz et al.’s study extends the role effectiveness of engagement as a predictor of learning to community college students.

Most community college students attend college within their home community and retain many of their pre-college relationships and responsibilities (Deil-Amen, 2011), thus they may not feel a need for social engagement. Though those interactions may be unnecessary for social reasons, Kuh’s model suggests that they are essential for educational reasons. Braxton et al. (2004) asserted that campuses with large numbers of commuter students, such as community colleges, may have fewer opportunities for student engagement in learning experiences with peers outside the classroom. Therefore, the current study selected a sample of students engaged in an ethnic-specific or multicultural student organization in an effort to study an ethnically diverse group of students engaged in a cocurricular activity with an active faculty advisor. This sample allowed me to examine the ways engagement with faculty and peers predicted learning for diverse students.

Method

Instrument

The Community College Student Experiences Questionnaire (CCSEQ) was the instrument used to collect data for this study. Similar to the CCSSE, the premise of the CCSEQ is that student learning is dependent on the quality of effort students invest in the college experience, measured mostly in terms of how frequently they engage in interactions with peers, faculty, curriculum, and campus facilities. In addition to quality of effort variables, the CCSEQ contains questions about the quality of the social environment, measures about characteristics of the institution and student, frequency with which students use the facilities, courses, programs, and activities offered by the college, and measures about the types of conversations and discussions in which
students engage. The quality of the social environment measures students’ perceptions of other students, faculty, and administrative personnel. The CCSEQ was used instead of the CCSSE because this project was part of a larger study that required elements of the CCSEQ that were not included in CCSSE.

Based on his axiom that quality of student effort is an important element of student success in college, Pace (1979b, 1982) developed the College Student Experiences Questionnaire (CSEQ) to assess student quality of effort and benefits from that effort at baccalaureate-granting colleges (Pace, 1979a). With a sample of more than 14,000 undergraduates at 40 different institutions who took the CSEQ, Pace identified students’ quality of effort to contribute more to student learning than student and institutional characteristics (Pace, 1982, 1984). Drawing on the CSEQ, he later developed the CCSEQ to capture variables of student investment of effort based on the community college experience (Pace, Friedlander, Murrell, & Lehman, 1999).

The CCSEQ relies entirely on students’ self-report. Self-reports lack the internal validity of a pretest-posttest design (Bowman, 2010, 2011; Pascarella, 2001), but self-reported data are considered valid if the information given is known to the students, if the questions are phrased clearly, and if students consider the question worthy of a thoughtful response (Pace, 1985). The CCSEQ items satisfy these conditions as students are asked to recall only experiences that have occurred in the current school year; assessments of student’s knowledge about the items indicate that they understand the questions, and 95% of the students answer all of the questions on the instrument, indicating that they are taking the questionnaire seriously (Kuh, Vesper, Connolly, & Pace, 1997). Bowman (2010) found that for first-generation college students, the correlations between their self-reported learning and actual gains over time were 3 times stronger than they were for students who were not first generation. Most of the California community college student population is first generation, which bodes well for the reliability self-report in this study.

**Variables**

Dependent variables were five composite scales measuring students’ self-reported learning. The general education scale (seven items, \( \alpha = .84 \)) included measures such as understanding art, learning about other parts of the world, and developing an interest in charts and graphs. Intellectual skills (four items, \( \alpha = .82 \)) included variables such as gains in writing, developing the ability to learn on one’s own, and presenting information clearly in speech. Science and technology (four items, \( \alpha = .73 \)) was a set of measures about using computers to access information, understanding mathematical concepts, and the role of science and technology in society. Examples of items in the personal development scale (five items, \( \alpha = .83 \)) were measures of learning related to personal values, health habits, physical fitness. Career preparation (three items, \( \alpha = .83 \)) was about learning related to career goals and opportunities.

Independent variables were three sets of variables about (a) student background characteristics, (b) quality of the institution’s social environment as perceived by the student, and (c) a set of variables about the extent to which students were engaged in
the college experience. Student background characteristics consisted of sex, native English speaker, and race/ethnicity. Student race/ethnicity was dummy coded for each of the following groups: Asian or Pacific Islander, African American, Latino/a, and White. Because Native Americans were a small portion of the sample (3%, n = 6), they were combined with the category of “Other.” Student race/ethnicity was included because prior research with CCSEQ data has found differences in gains based on student race/ethnicity (R. A. Horn & Ethington, 2002).

Quality of the social environment was measured through 4-point Likert-type scales about student perceptions of their relationships with other students, faculty, and administrative staff. For relationships with students, the measure was about how many students were friendly and supportive. For relationships with faculty, the measure included how many instructors were approachable, helpful, and supportive. For relationships with administrative personnel, the measure indicated how many counselor, advisors, and department secretaries were helpful, considerate, and knowledgeable. For each of these questions, response options on the CCSEQ were all (1), most (2), some (3), and few or none (4). After data were collected, those responses were reverse-coded, so that 1 = few or none and 4 = all.

Engagement was measured with four scales. Each scale was created by summing individual variables from the CCSEQ and testing their reliability. An eight-item scale measured frequency of interaction with faculty, including discussions related to coursework, personal issues, current events, and career planning (α = .905). The scale measuring frequency of discussion with acquaintances different from self included others of a different race, religion, political perspective, age, ethnicity, or home country (α = .918). In addition to high reliabilities in this study, these two scales have been tested with a large national sample (n > 18,000) and found to be highly reliable (α > .85) unidimensional scales for students across four different racial/ethnic groups and for both transfer and vocational students (Ethington & Polizzi, 1996). Two new scales were created for the purpose of the current study. The peer teaching scale included the frequency with which students explained ideas to others around topics such as science and course material (four items, α = .830). Frequency of engagement with a student organization measured how often students were involved in a student organization or its events (three items, α = .820). Both scales were comprised of CCSEQ items that have been deemed clear and unambiguous since the beginning of CCSEQ administration (Pace, 1979a, 1982). A full table of variables is included in the appendix.

Procedure

The study was designed to understand the ways that student engagement with peers and with faculty contributes to student learning for an ethnically diverse group of students involved in a student organization. Because little is known about the ways that out-of-class engagement with peers and faculty contributes to student learning at the community college level, it was important to test the model with students who were involved in a college activity outside the classroom. In an effort to identify a racially and ethnically diverse group of students, participants were sought from intercultural,
multicultural, and ethnic-specific student organizations. These student organizations were organized around a mission to provide support, culturally relevant education, and community building for students interested in particular racial/ethnic groups or to provide a broader understanding and support of students interested in multiculturalism.

To identify thriving student organizations, Directors of Student Activities from 109 California community colleges were asked to nominate an organization from another campus for inclusion in this study. Directors of Student Activities were well suited to nominate organizations because they were directly responsible for the institutional recognition and chartering of all student organizations on their campuses. They also belong to a professional network, the California Community College Student Affairs Association (CCCSAA), where they became familiar with the work of one another and of organizations at other campuses. Criteria for nomination included organizations that (a) were engaged in the surrounding community, (b) had an actively involved faculty advisor, and (c) were formally recognized on campus for at least 1 year. Nominations were received for 42 different student organizations, and the 12 organizations that received the most nominations were selected for inclusion in the study. Those 12 organizations were located in 12 different non-residential community college campuses in California.

Participants

Participants were members of nominated organizations who were present at a meeting when the survey was administered. Each organization was from a different community college. One of the researchers attended a regularly scheduled meeting, distributed the questionnaire at the conclusion of the meeting, and stayed to collect the questionnaire when students were finished. The faculty advisors of the organizations were not present during the administration of the instrument. Completing the survey was voluntary; 2 persons of the 241 sample chose not to participate. By taking part in the research, the participants were entered into a drawing for which the student organization could win US$300 for its programming needs.

There were 86 participants in areas defined as urban, 23 participants in areas defined as rural, and 120 participants in suburban areas. Most of the students were Hispanic/Latino/a (45%, n = 106). The other groups were split relatively evenly among racial/ethnic groups of Black (16%, n = 38), White (15%, n = 36), Asian/Pacific Islander (10%, n = 24), and “Other” (11%, n = 26). Only a small portion were Native American (3%, n = 6), so that group was added to the group called “Other,” increasing its number to 22 (14%). Students were able to choose more than one racial or ethnic group, so the numbers add to 104%. Most of the students’ primary reason for enrollment at the college was either for the purpose of transferring to a 4-year institution (78%, n = 187), or to gain skills necessary to enter a new job (13%, n = 32); 15 (6%) reported another reason for attending, and five students did not respond to the question. The sample was relatively traditional in terms of their enrollment status, age, and work. Most of them were enrolled full-time (60%, n = 144), worked fewer than 31 hours per week (87%, n = 208), and most were 22 years old and younger (75%, n =
179). However, most of them also had responsibility for dependents (76%, n = 182) and 43% (n = 102) of the students in the sample expressed that their employment interfered with their schoolwork.

**Data Analysis**

Multiple linear regression was used to test the model. This is a common way of estimating the unique contribution of variables that are chronologically ordered (Astin & Dey, 1996). Hierarchical linear modeling may be considered a better approach for these data, given the nested nature of students within institutions and the potential for misestimated standard errors. However, Astin and Denson (2009) tested models of HLM and ordinary least squares (OLS) regression and found similar results. They argue that the problem of misestimated standard errors in OLS with nested data can be corrected using a $p$ value for institutional variables that is half that required for student-level variables. The current study set alpha at .025 for institution variables and .05 for student variables.

The five different measures of gains in learning were regressed onto the three temporally ordered blocks of independent variables. Student background variables were entered first, followed by institutional characteristics, followed by student engagement variables in the third block. According to Licht (2001), this analysis is appropriate to test the utility of a set of independent variables (student and institutional characteristics, frequency of engagement) for predicting a criterion event or behavior (gains in learning). The first block of variables included student background characteristics of sex, English as first language (dummy coded), and race/ethnicity (dummy coded). The racial/ethnic category of Latino was the omitted reference category. The second block included institutional features of quality of relationships with students, faculty, and administrators. The third block was comprised of an engagement variable including faculty interaction, discussion with peers different from oneself, peer teaching, and level of involvement in a student organization. The model was tested with five different dependent variables measuring self-reported gains in: general education, intellectual skills, science and technology, personal development, and career preparation.

**Limitations**

The sample for this study was not random, but was designed to capture students who were involved in an active student organization with a faculty advisor who was recognized by Directors of Student Activities as being actively involved in the organization. Because participants were drawn from organizations nominated by Directors of Student Activities, the sample likely underrepresents institutions whose advisors are less networked with Directors of Student Activities at other colleges. Another limitation is the use of self-reported gains. Though Pike (1995, 1996) found that self-reported gains were correlated with objective measures of learning gains, objective measures would provide a stronger level of confidence in these findings. Finally, few students in
this sample had intentions other than transferring to a baccalaureate-granting college, thus the findings may not apply to students who enroll for non-transfer purposes.

Results

For each of the five learning outcomes, frequent interaction with faculty was the strongest predictor in the model. It predicted gains in general education \( (b = .249, p < .001) \), intellectual skills \( (b = .299, p < .001) \), science and technology \( (b = .343, p < .001) \), personal development \( (b = .332, p < .001) \), and career preparation \( (b = .362, p < .001) \).

The three variables measuring engagement with peers were weaker predictors than frequent interaction with faculty, but each contributed to most outcomes. Peer teaching contributed positively to gains in science and technology \( (b = .259, p < .001) \), intellectual skills \( (b = .157, p < .05) \), general education \( (b = .155, p < .01) \), and career preparation \( (b = .127, p < .05) \). Frequency of participation in a student organization contributed positively to gains in personal development \( (b = .191, p < .01) \), intellectual skills \( (b = .178, p < .01) \), career preparation \( (b = .142, p < .05) \), and general education \( (b = .127, p < .05) \). Discussing ideas with diverse others contributed only to gains in general education \( (b = .228, p < .01) \). Interacting with diverse acquaintances contributed substantially to gains in general education \( (b = .228, p < .01) \), but not to the other outcomes.

The only student background characteristic that made a significant contribution to learning was non-native English speaker, which made a positive contribution to gains in science and technology \( (b = .227, p < .001) \) and contributed to 5% to the total variance explained by the model. Students’ perception that administrative staff were helpful contributed to gains in general education \( (b = .173, p < .01) \) and intellectual skills \( (b = .126, p < .05) \). Perceptions that instructors were approachable, helpful, and supportive contributed to gains in career preparation \( (b = .182, p < .01) \). Each of these institutional characteristics contributed 7% or less to the total variance explained by the model.

In summary, the measures of engagement contributed the most to the variance, ranging from 30% (for general education) to 18% (for personal development). Student and institutional characteristics contributed much less to the variance (from 0% for personal development to 6% for general education). Variables significant at the final step of the multiple regression models are included in Table 1.

Discussion

Frequent student interaction with faculty was the strongest predictor of learning for each of the five outcomes of this study. Previous studies have suggested that faculty play an especially important social integration role in community college students because the classroom is often the sole locus of involvement for such students (Tinto, 1997, 1998) and because there are few opportunities for social integration outside the classroom (Braxton et al., 2004). The current study extends the contribution of faculty
Table 1. Significant Regression Coefficients at Final Step Predicting Learning in Five Different Domains (n = 239).

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>General education</th>
<th>Intellectual skills</th>
<th>Science and technology</th>
<th>Personal development</th>
<th>Career preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1: Student characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-native English</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.227***</td>
</tr>
<tr>
<td>speaker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.047</td>
</tr>
<tr>
<td>Block 2: Institutional characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff is helpful,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.173**</td>
</tr>
<tr>
<td>considerate,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and knowledgeable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructors are</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.182**</td>
</tr>
<tr>
<td>approachable, helpful,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>supportive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² change</td>
<td>.065</td>
<td>.055</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>.065</td>
<td>.055</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.249***</td>
</tr>
<tr>
<td>interaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.299***</td>
</tr>
<tr>
<td>Discussed with diverse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.343***</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.332***</td>
</tr>
<tr>
<td>Peer teaching</td>
<td>.155**</td>
<td>.157*</td>
<td>.259***</td>
<td></td>
<td>.127*</td>
</tr>
<tr>
<td>Frequency of</td>
<td>.140*</td>
<td>.178**</td>
<td>.191**</td>
<td></td>
<td>.142*</td>
</tr>
<tr>
<td>participation in a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>student organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R² change</td>
<td>.297</td>
<td>.217</td>
<td>.249</td>
<td>.183</td>
<td>.226</td>
</tr>
<tr>
<td>Final R²</td>
<td>.362</td>
<td>.272</td>
<td>.296</td>
<td>.183</td>
<td>.306</td>
</tr>
<tr>
<td>F</td>
<td>23.022***</td>
<td>18.849***</td>
<td>29.791***</td>
<td>23.768***</td>
<td>23.106***</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

interaction to the arena outside the classroom by the inclusion of discussion of topics other than coursework. Three of the eight variables in the faculty interaction scale were about non-curricular issues (career plans, personal issues, and current events). The students in the sample were all involved in an ethnic-specific or multicultural student organization with an active faculty advisor, but the measure of student interaction with faculty did not specify which faculty members with whom students were engaging. Thus, application of findings relevant to student–faculty interaction should not be assumed to apply only to interactions with the student organization advisor. The study serves a heuristic purpose, suggesting that student–faculty interaction, both inside and outside the classroom, can play an important role in student learning at the
community college level. Regardless of where the faculty–student interaction took place, students gained more from it than from any of the other variables in the study.

Community colleges must continue to identify ways to foster and reward faculty interaction with students. This task is particularly challenging because of the large proportion of part-time faculty employed by community colleges. Increasing the numbers of full-time faculty may be one way to increase student access to faculty (Jaeger & Eagan, 2009), but even full-time faculty have limited time for student interaction, given their heavy teaching loads and committee assignments. Changing the reward structure for faculty is another possible approach. Typically, community college faculty work with students outside the classroom is not rewarded financially or with release time. A reconsideration of reward systems for community college faculty may be warranted. Modifying the faculty makeup and changing the reward structure are major shifts. In addition to those changes, student affairs professionals can focus on innovative ways to garner faculty efforts to engage with students outside the classroom. Such efforts might include identifying faculty members who frequently invest time with students and recognizing them publicly. Such recognition could include notifying their department chairs and deans of their substantial contributions to students outside the classroom. Recognition events and campus publications could also highlight their efforts.

Incentives to get students involved on campus offer promise for increasing student learning. For the students in this study, engagement paid off in terms of learning, but they likely had more time to be involved on campus than most community college students. Most were enrolled full-time, worked fewer than 30 hours per week, and were 22 years old and younger. However, most also had responsibility for dependents and 43% of the students in the sample said that their employment interfered with their coursework. Thus, they were juggling more responsibilities than most residential students at 4-year colleges, but likely not as many as the majority of their peers at the community college. Given the promising contribution of involvement in a student organization, community colleges must be diligent to create involving experiences that do not take too much time or that enable students to combine tasks. For example, ethnic student organizations often schedule programs and celebrations that include families and significant others, so that students are not torn between home responsibilities and school activities. Explicit explanations of the benefits of some cocurricular involvements could also benefit students. At the community college level, engagement outside the classroom is relatively uncommon, thus students might not consider such involvements as having educational value. The timing of involving activities might also affect the extent to which students can be involved. On campuses with large numbers of evening classes, opportunities for involvement should be available in the evening hours.

Community college students face challenges to such involvement, given their multiple responsibilities off campus, their existing social networks in the same community, and few social integration opportunities (Braxton et al., 2004; Ethington, 2000). Nonetheless, the current study suggests that if students can find time to engage with
peers and faculty outside the classroom, such involvement pays off in terms of learning.

Consistent with other research, the study found that teaching ideas and concepts to peers contributed to student learning. Levin, Cox, Cerven, and Haberler (2010) found that student support centers with plentiful tutoring availability can be very beneficial to students. The current study adds to the value of such centers by finding that peer teaching enhances learning, thus tutoring likely benefits the tutors. Thus, efforts to expand academic support centers likely have a dual benefit in terms of enhancing learning for both tutors and tutees. In addition to formal tutoring programs, informal opportunities for peer teaching can be plentiful when courses and student leadership roles are structured, so that students learn from one another. For example, when students must explain why their organization should receive funding or why a particular vendor should be boycotted, students are required to teach others. Restructuring programs and services to maximize peer teaching could be an important step toward enhancing learning.

**Future Research**

The students in the current study were involved in an ethnic-specific or multicultural organization; further study could investigate the role of involvement in a broader variety of organizations and programs. Though community college students often encounter demands on their time from responsibilities and roles outside the college experience, their investment of time in relationships with peers and faculty outside the formal classroom seems to pay off. A similar study could readily be conducted at an individual institution to identify the types of involvement that yield the greatest learning benefits. Faculty and student resources, especially related to time, are often scant. Wise use of those resources can be determined through such an assessment.

Quality of effort with faculty was quite low for students in this study, similar to the low Ethington (2000) reported in a similar study. This raises the question of whether faculty interaction might make a stronger contribution to student learning if it occurred at a greater rate. Further research could identify programs with high student–faculty interaction, such as coordinated studies (Tinto, 1998), to better capture the potential of faculty interaction to learning for community college students. Another topic for future research is related to the benefits of engaging with diverse others at the community college level. In studies of 4-year college students, such engagements contributed to course-related learning, social skills and civic interest (Chang et al., 2004), and leadership and cultural awareness (Antonio, 2001; Gurin et al., 2002). However, the current study found that discussions with diverse others only made a significant contribution to gains in general education. This finding may be explained in part by the diverse student population of California community colleges by the sample selection from an ethnic-specific or multicultural student organization. In a study of the effects of cross-racial interactions on learning, a linear positive relationship occurred between the two variables until institutions became highly diverse (Chang et al., 2004). For campuses with highly diverse student populations, gains declined for Latino and Asian American
students. Future research could include a measure of institutional diversity to control for this effect.

Conclusion

Student engagement with faculty members and with one another in settings where students taught one another were especially strong predictors of student learning. This study echoes the assertion of Levin and colleagues (2010) that community college faculty are a “core element to student development and attainment” (p. 54). All students in the current study were involved in an ethnic-specific student organization or a multicultural student organization, but those who were more deeply involved in the organization, either through frequency of participation or through holding leadership positions, benefitted more in terms of learning. Such organizations often operate on the periphery of campus focus, generated and supported by a few interested students or by a faculty member who is willing to go beyond their job responsibilities to maintain such a group. This study suggests that such organizations provide educational benefits, and their support should be considered more thoroughly in institutional decision making. The finding that students learn more when they teach other students is consistent with other studies; efforts to increase such opportunities should be considered.

Overall, the findings of this study are consistent with studies of baccalaureate-granting institutions. Community colleges are organized around classroom teaching, with little emphasis on student organizations or faculty–student interaction outside the classroom. This study suggests that those domains may be missed opportunities that community colleges could expand to increase student learning.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.
### Appendix

#### Description of Variables.

<table>
<thead>
<tr>
<th>Student background</th>
<th>Definition and codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male = 1 (44%, n = 105), female = 2 (54%, n = 128), missing data (3%, n = 6)</td>
</tr>
<tr>
<td>Native English speaker</td>
<td>Yes = 1 (51%, n = 122), No = 2 (49%, n = 117)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>Coded as dummy variables, with 1 = yes, 2 = no. Native American (3%, n = 6), Asian or Pacific Islander (10%, n = 24), African American (16%, n = 38), Latino/a (44%, n = 106), White (15%, n = 36), Other (11%, n = 26), Missing (1%, n = 3).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other students</td>
<td>2.01</td>
</tr>
<tr>
<td>Faculty</td>
<td>2.03</td>
</tr>
<tr>
<td>Staff</td>
<td>2.18</td>
</tr>
</tbody>
</table>

The institutional social environment was measured with three questions about the quality of relationships with students, faculty, and staff. It was originally measured on a 4-point Likert-type scale, with 1 = all, 2 = most, 3 = some, 4 = few or none. The scale was recorded, so that 1 = few or none, 2 = some, 3 = most, and 4 = all.

Other students: How many students were perceived to be friendly and supportive?

Faculty: How many instructors were perceived to be approachable, helpful, and supportive?

Staff: How many staff and administrative personnel were perceived to be helpful, considerate, and knowledgeable?

Engagement variables were all measured with a 4-point scale, with 1 = never, 2 = occasionally, 3 = often, 4 = very often. Eight items measuring the frequency with which students faculty topics related to coursework and academic plans, current events, and personal issues (α = .91).

Student–faculty discussed with interaction performance, career | 19.25 | 5.98 |

Diverse discussions | 15.40 | 5.24 |

Had serious conversations with students who were very different from self in terms of age, ethnicity, values, political views, religious beliefs, political opinions, or country of origin (α = .92).

(continued)
### Appendix (continued)

#### Student background

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer teaching</td>
<td>7.34</td>
<td>3.00</td>
</tr>
<tr>
<td>Organization</td>
<td>9.10</td>
<td>2.70</td>
</tr>
<tr>
<td>involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General education</td>
<td>22.21</td>
<td>5.40</td>
</tr>
<tr>
<td>Intellectual skills</td>
<td>11.67</td>
<td>2.79</td>
</tr>
<tr>
<td>Science and technology</td>
<td>10.73</td>
<td>2.94</td>
</tr>
<tr>
<td>Personal development</td>
<td>15.37</td>
<td>3.53</td>
</tr>
<tr>
<td>Career preparation</td>
<td>8.46</td>
<td>2.48</td>
</tr>
</tbody>
</table>

- **Peer teaching**: Composite of four items measuring the frequency with which students explained course material, use of scientific equipment, an experimental procedure, or a scientific principle ($\alpha = .79$).
- **Organization involvement**: Composite of three items measuring the frequency with which students were involved with their student organization through leadership positions, participating in a campus event, or in an off-campus event sponsored by a student organization ($\alpha = .82$).
- **General education**: Composite of seven items measuring students' self-reported learning in general education topics, such as understanding art, learning about other parts of the world, and developing an interest in charts and graphs ($\alpha = .84$).
- **Intellectual skills**: Composite of four items measuring students' self-reported learning in areas such as writing, presenting a speech, and learning on one's own ($\alpha = .82$).
- **Science and technology**: Composite of four items measuring students' self-reported learning about topics such as using computers, understanding mathematical concepts, and the role of science in society ($\alpha = .73$).
- **Personal development**: Composite of five items about students' self-reported learning related to personal value, health habits, and fitness ($\alpha = .83$).
- **Career preparation**: Composite of three items about students' self-reported learning related to career goals and opportunities ($\alpha = .83$).
References


**Author Biography**

**Carol A. Lundberg** is an associate professor in the Higher Education and Community College Leadership program at California State University, Fullerton.