Faculty Fostering Collaborative Learning and Personal and Social Responsibility

Tony Ribera, Amy K. Ribera, Allison BrckaLorenz, Ph.D., & Thomas Nelson Laird, Ph.D.

Indiana University

Center for Postsecondary Research

Faculty Survey of Student Engagement

Authors' Note

Abstract

The interactions experienced by undergraduates through collaborative learning (CL) are paramount for academic and personal development. Yet, little is known about the faculty who employ CL teaching techniques, and the academic context in which it is likely to happen. Using data from over 1,400 faculty members, this study identifies demographics and course characteristics that are predictive of faculty using CL in their selected course section. Findings reveal discipline, class size, gender, race/ethnicity, and time spent reflecting on teaching practices are predictive of faculty fostering collaborative learning experiences. Further, using CL is positively linked to promoting various aspects of personal and social responsibility, an essential learning outcome.

Faculty Fostering Collaborative Learning and Personal and Social Responsibility

For over a quarter-century, there has been a growing national interest in the quality of undergraduate education in the United States. In the early 1980s, reports like *A Nation at Risk* (The National Commission on Excellence in Education, 1983) and *Involvement in Learning* (The National Institute of Education, 1984) challenged colleges and universities to increase academic rigor and aspire for institutional excellence. The Wingspread Group on Higher Education (1993) encouraged colleges and universities to reposition their focus on student learning and to better address the needs of students. By putting student learning first, institutions of higher education would set higher expectations, define clear learning outcomes, and systematically assess student learning (The Wingspread Group on Higher Education, 1993).

In 1987, Chickering and Gamson sought to assist institutions in their efforts to improve teaching and learning by highlighting seven principles of good practice. Among them, Chickering and Gamson (1987) identified cooperation among students as an effective educational practice where student learning is enhanced by engaging in collaborative assignments which require them to share ideas and respond to the ideas of others (Bosworth, 1994; Marcum Gerlach, 1994). Examples of collaborative learning activities include study groups and team-based research projects (Gross Davis, 1993; Kuh, 2008). As institutions were encouraged to shift from a focus on instruction to a focus on producing student learning (Barr & Tagg, 1995), collaborative learning continued to emerge (Ramsen, 2003).

Research has shown that undergraduate students are more engaged in learning when faculty members employ collaborative learning techniques (e.g., Barkley, Cross & Howell Major, 2005; Colbeck, Campbell & Bjorklund, 2000). Students attending institutions where faculty utilized collaborative learning techniques felt more supported and reported greater gains

across a host of learning and developmental areas (Umbach & Wawrzynski, 2004). Despite

knowing much about the effects of collaborative learning on undergraduate education, little is

known about the faculty who tend to use collaborative learning in their courses as well as the

course conditions in which students are likely to experience these practices. Further, the

relationship between employing collaborative learning strategies and the amount of emphasis

faculty members place on other outcome is unknown. To test whether a connection exists, we

examined whether the use of collaborative learning is associated with promoting an essential

liberal learning outcome, personal and social responsibility (AAC&U, 2009).

Review of the Literature

In an effort to prepare citizens for twenty-first century challenges, institutions are

encouraged to promote personal and social responsibility among students. This includes

engaging in civic engagement and ethical reasoning as well as active involvement with diverse

populations (AAC&U, 2009). Dey and Associates (2009) found faculty, administrators and

students strongly agreed that institutions should promote personal and social responsibility;

however, only about one-third of students felt their undergraduate education helped them to

develop skills in this area. In general, faculty, administrators and students thought more time

should be spent on developing students' personal and social responsibility (Dey & Associates,

2008).

A growing body of empirical evidence has found a positive relationship between

collaborative learning and outcomes related to personal and social responsibility (e.g., Cabrera et

al., 2002; Cruce, Wolniak, Seifert, & Pascarella, 2006; Umbach & Wawrzynski, 2004). O'Neill

(2012) recently described collaborative learning as an engaged learning process that has a

positive impact on areas like academic motivation, political and social involvement, and

openness to diversity. Also, by participating in collaborative learning, undergraduate students are more likely to achieve academically and exhibit positive views toward the learning process (Colbeck, Campbell & Bjorklund, 2000). In general, collaborative learning has been deemed paramount for academic success as well as cognitive development (Barkley, Cross & Howell Major, 2005). This review of the literature focuses on the relationship between collaborative learning and educational outcomes, specifically practical skills and openness to diversity, as well as personal and cognitive development. Additionally, we discuss faculty members' roles in promoting collaborative learning.

Practical Skills and Diversity

Often times, college students may be accustomed to competitive or individualistic classroom environments where they do not rely on peers to further their learning. In fact, assignments may be graded on a curve which results in students focused on their own achievement as well as preventing the achievement of others (Barkley, Cross & Howell Major, 2005; Johnson, Johnson & Smith, 1998). However, when compared to competitive and individualized learning experiences, students achieve greater learning through collaborative experiences (Marcum Gerlach, 1994).

Qin, Johnson and Johnson (1995) explored the effects of cooperative and competitive exercises on problem-solving among elementary and secondary school students, college students and adults. Through a meta-analysis of 46 relevant studies between 1929 and 1993, the authors found that cooperation led to greater problem-solving abilities. Similarly, Terenzini et al. (2001) looked at differences between collaborative and individualistic classroom environments, comparing gains of students in engineering courses that used collaborative learning to gains of students in traditional lecture and discussion engineering courses. The authors found that

collaborative learning produced significantly greater gains in design skills and communication skills when compared to traditional lecture/discussion classes.

Looking at diversity, scholars suggest students benefit from collaboration with students who have diverse learning styles and abilities (e.g., Colbeck, Campbell & Bjorklund, 2000) and are from diverse backgrounds (e.g., Marcum Gerlach, 1994). Research shows that collaborative learning has a significantly positive effect on students' openness to diversity (Cabrera et al., 2002; Cruce, Wolniak, Seifert, & Pascarella, 2006).

Personal and Cognitive Development

Collaborative learning is essential for one's identity and cognitive development. Similar to Umbach and Wawrzynski (2004), Cabrera et al. (2002) found collaborative learning to be a predictor of student gains in personal development. Looking at Chickering's (1969) Vectors of Identity Development, we see a close alignment with collaborative learning. Through interactions and group processing, students develop connections with peers, learn to balance their interests with those of others, and develop confidence in their abilities and a sense of identity (Chickering, 1969).

Collaboration with peers has also been described as an essential prerequisite for one's cognitive development (Johnson, Johnson & Smith, 1998). By promoting a sense of interdependence in the college classroom, faculty members help students recognize the importance of peers in their individual achievement (Bosworth, 1994; Bruffee, 1987; Johnson, Johnson & Smith, 1991). Evans, Forney, and Guido-DiBrito (1998) expand on this, writing, "Peers become more legitimate sources of knowledge and individuals are likely to improve their ability to think analytically" (p.131). In addition to peers emerging as knowledgeable resources, students also begin to see themselves as creators of knowledge, which breaks down the

traditional classroom hierarchy (Bosworth, 1994; Bruffee, 1987). By designing collaborative learning assignments, instructors establish an environment where students can learn from and teach one another (Evans, Forney & Guido-DiBrito, 1998).

Faculty Roles

Faculty have been encouraged to take an intentional approach to collaborative learning through designing educational activities and providing effective grouping and monitoring (Barkley, Cross & Howell Major, 2005; Miller, Trimbur & Wilkes, 1994; Rau & Heyl, 1990). Johnson, Johnson and Smith (1998) and Rau and Heyl (1990) provide faculty members with information on the various forms of collaborative learning and the tools to promote collaborative learning in their courses. This includes assigning roles and teaching students the necessary social skills for successful peer interactions. Should collaborative learning lack intentional assignments and monitoring, there is a greater chance of negative feelings as well as a drop in quality (Flannery, 1994). Faculty must ensure collaborative learning experiences include encouragement among peers, individual accountability and group processing and that the objectives behind collaborative learning are clearly communicated (Gross Davis, 1993; Johnson & Johnson, 1975).

Despite knowing much about the facilitation of this effective educational practice, little is known about the actual faculty who utilize collaborative learning techniques. Additionally, despite research that highlights specific gains associated with collaborative learning, little is known about how the facilitation of collaborative learning relates to faculty emphasis on essential learning outcomes, including personal and social responsibility (AAC&U, 2009). Using data from the 2011 Faculty Survey of Student Engagement, this study seeks to identify subpopulations of faculty who are most or least likely to use collaborative learning in their

selected course and whether use of collaborative learning is linked to the promotion of personal and social responsibility.

We know that collaborative learning is important for student learning and development, but because student engagement often depends on the engagement of faculty, it is important that we understand the intentions and habits of faculty. Therefore, the following research questions guided this study:

1. To what extent is the use of collaborative learning as a teaching method affected by course characteristics (e.g., enrollment size, course level, and disciplinary area)?

2. To what extent is the use of collaborative learning as a teaching method affected by faculty characteristics (e.g., gender, race/ethnicity, and rank)?

3. To what extent is collaborative learning associated with the promotion of personal and social responsibility?

Methods

Data Source

The data for this study come from the 2011 administration of the Faculty Survey of Student Engagement. The FSSE is an annual survey designed to complement findings from students who participated in the National Survey of Student Engagement (NSSE) in the current or previous academic year. The survey collects information about faculty members' expectations and perceptions of students as well as information about how faculty structure their classroom activities to encourage desirable learning outcomes and behaviors, and how they organize their discretionary time on other professorial activities (e.g. research, teaching, advising, and service). Over 19,000 faculty members from 157 baccalaureate degree-granting institutions participated in 2011. Response rates for institutions ranged from 19% to 93%, with an average of 46%.

Sample

A subset of 25 institutions was administered extra items at the end of the core survey. The extra item set asked faculty to think about a course section that they had taught over the last academic year. Then they were asked how often they incorporated collaborative learning strategies in the selected course. About 1,450 faculty provided responses to the core survey as well as the extra item set. After the deletion of missing data, the final sample was reduced to 1,434. Table 1 shows the sample represents a wide cross-section of faculty and institutional types. Institutional characteristics of the sample closely resemble US figures by control type, Carnegie classifications, and enrollment size. The sample is slightly overrepresented by medium-sized institutions. Also over a quarter of the institutions were categorized as Historically Black College and University's (HBCUs). As for faculty characteristics, one-sixth of the sample consists of Black faculty which is more than the national average of 5% according to figures from National Center for Education Statistics (NCES). However, the other minority populations and academic rank closely resemble national figures. It is also slightly underrepresented by men and faculty who are employed full-time.

Independent Variables

For the independent variables, academic (e.g., rank and employment status) and demographic characteristics (e.g., gender and race/ethnicity) were isolated for this study (see Appendix B). Further, since faculty are encouraged to take an intentional approach when implementing collaborative learning (Barkley, Cross & Howell Major, 2005; Miller, Trimbur & Wilkes, 1994; Rau & Heyl, 1990), which may affect their discretionary time, one item from the core survey about time spent improving teaching was included as an independent measure.

Table 1

Sample Statistics by Institution and Faculty Characteristics

	N	*%*	US
Institution Characteristics[1]	*(N=25)*		
Control			
Private	17	68%	67%
Public	8	32%	33%
Carnegie Classification			
Research universities	4	16%	17%
Master's colleges and universities	10	40%	44%
Baccalaureate colleges	9	36%	39%
Other	2	8%	-
HBCU	7	28%	-
Institutional Size			
Small (fewer than 1,000)	4	16%	19%
Medium (1,000-9,999)	19	76%	66%
Large (more than 10,000)	2	13%	16%
Faculty Characteristics[2]	*(N=1,434)*		
Gender			
Men	750	52%	60%
Women	684	48%	40%
Race/ethnicity			
Asian/Asian American	68	5%	8%
African American/Black	225	16%	5%
Latino/Hispanic	41	3%	3%
Other race/ethnicity	57	4%	-
White (non-Hispanic)	1,043	73%	82%
Rank			
Lecturer/Instructor	308	22%	19%
Assistant professor	396	28%	20%
Associate professor	373	26%	18%
Full professor	357	25%	22%
Employment status			
Part-time	340	24%	34%
Full-time	1,094	76%	66%

[1] US percentages are based on data from NCES (2010 IPEDS Institutional Characteristics).
[2] US percentages are based on data from NCES (2004 National Study of Postsecondary Faculty)

Respondents had the option to select from a list of eight categorical response options that ranged

from zero to more than 30 hours per week. By using the midpoint of each of the response option,

data were recoded into a continuous variable. For the last category, "more than 30," a value of 33

was assigned. On average, faculty reported spending about 5 hours per week reflecting on ways

to improve their teaching.

Information about the type of course that faculty selected were also collected by the core

survey. Table 2 shows about two-thirds of the respondents selected an upper division course and

half chose a course that met a general education requirement. Many responded about a course

that had less than 20 students (43%) and only 11% choose a section with more than 50 students.

Table 2

Descriptive Statistics for Selected Courses Characteristics and Time Spent Reflecting on Teaching Practices (N=1,434)

	N	*%*
General education requirement	720	50%
Upper division	828	58%
Size of selected course section		
1-20 students	623	43%
21-50 students	648	45%
More than 50 students	163	11%
Disciplinary area		
Arts and humanities	346	24%
Education	88	6%
Business	158	11%
Biological sciences	73	5%
Engineering	54	4%
Physical sciences	175	12%
Health and other professionals	129	9%
Social sciences	207	14%
Other fields	204	14%

Faculty also taught in a wide range of disciplinary areas. One-fourth taught a course in the arts

and humanities, one-sixth in the social sciences and about one-tenth in business and physical

sciences. Faculty teaching courses in education, biological sciences, and professional fields were also represented.

Dependent Variables

Six items from the CL experimental item set (see Appendix A) were combined to form an internally consistent scale ($\alpha= 0.78$). Faculty were asked about how often they provided students with opportunities to give a course presentation with a group of other students; exchange feedback with other students to prepare course assignments; learn course material by asking and answering questions of other students; write a paper with other students for course credit; participate in a study group for the course; and exchange feedback with other students after taking an exam.

The second measure ($\alpha= 0.84$) was derived from the core survey which represents the extent to which faculty promoted personal and social responsibility in their selected course. Specifically, faculty were asked to what extent their selected course section was structured so that students developed an understanding of themselves and other people from different racial and ethnic backgrounds as well as a personal code of values, ethics, and deepened sense of spirituality (see Appendix A).

Analyses

Two analyses were conducted using ordinary least squares modeling. Course and faculty characteristics (see Appendix B) were introduced into the first model to help explain the variance in faculty uses of collaborative learning in their selected course sections. The course variables included disciplinary area, course level, general education requirement, and class size. The faculty variables were female, race/ethnicity, rank, employment status, and time spent reflecting on teaching practices. The second model applied the same list of independent variables but also

added collaborative learning to help explain the variance in faculty promotion of personal and

social responsibility. This model tested the relationship between faculty uses of CL and their

promotion of the essential learning outcome while controlling for faculty and course

characteristics. All the dichotomous independent variables were grand mean centered prior to

entering into the models. Also the continuous independent variable, time spent reflecting on

teaching practices, was unstandardized in both analyses.

Results

Table 3 shows descriptive statistics for items included in the collaborative learning scale.

Overall, it appears some teaching strategies were more utilized than others. For instance, faculty

members were more likely to encourage students to exchange feedback with each other in order

to prepare a course assignment. They were also more likely to foster peer learning by having

students ask and answer each other's questions. Only about one-fifth of the faculty reported they

had their students write a paper with other students for course credit.

Table 3

Item-level Frequencies for Collaborative Learning Scale

	Often/Very Often
	(%)
Give a course presentation with a group of other students	50%
Exchange feedback with other students to prepare course assignments	60%
Learn course material by asking and answering questions of other students	58%
Write a paper with other students for course credit	19%
Participate in a study group for your course	30%
Exchange feedback with other students after taking an exam (e.g., debating correct answers	39%

Regression results presented in Table 4 suggests a significant portion of the variance in faculty uses of collaborative learning (R^2 =.14) was explained by some aspects of the course context and faculty characteristics. Among the course variables, size of the classroom, general education requirement, and disciplinary area were significant predictors. Compared to course sections with less than 20 students, the model revealed teaching a larger course (50 or more students) had a negative effect (B=-.40; p<.001) on the use of collaborative learning. Also collaborative learning strategies were more used in general education courses (B=.14; p<.05) when controlling for the faculty and other course characteristics. The model showed faculty in education, business, engineering, and health and other professions were significantly more likely to use collaborative learning compared to faculty teaching in the biological sciences.

As for faculty characteristics, the model revealed that women tended to use collaborative learning practices 15% of a standard deviation more than men. Controlling for course and the other faculty measures, White and Asian/Asian American faculty were less likely to use collaborative learning in their selected course section compared to the other the racial/ethnic categories. Specifically, Black faculty and faculty who selected "other race/ethnicity" tended to emphasize these activities two-fifths of standard deviation more than their White peers. Further, Latino and Hispanic faculty (B=.29; p<.05) reported using collaborative learning significantly more than White faculty. Employment status was also a significant predictor. That is, those who were employed full-time promoted collaborative learning 17% of a standard deviation more than part-time faculty when controlling for the other faculty and course variables. A positive relationship was also found between the time spent reflecting on teaching practices and the use of collaborative learning; for every one-hour increase, the Collaborative Learning scale increased by 5% of a standard deviation. Interestingly, significant differences in uses of collaborative

Table 4

Regression Results for Faculty Uses of Collaborative Learning in Selected Course Section (N=1,434)

	Model 1	
	B	SE
Constant	0.00	0.02
Course Characteristics		
Disciplinary area[1]		
Arts and humanities	0.19	0.12
Education	0.34 **	0.15
Business	0.51 ***	0.13
Engineering	0.54 ***	0.17
Physical sciences	0.08	0.13
Health and other professionals	0.55 ***	0.14
Social Sciences	0.07	0.13
Other fields	0.20	0.13
Lower division	-0.05	0.06
General education requirement	0.14 *	0.06
Class size[2]		
21-50 students	-0.05	0.06
More than 50 students	-0.40 ***	0.09
Faculty Characteristics		
Female	0.15 **	0.05
Race/ethnicity[3]		
Asian/Asian American	0.09	0.12
African American/Black	0.43 ***	0.07
Latino/Hispanic	0.29 *	0.15
Other race/ethnicity	0.40 **	0.13
Rank[4]		
Lecturer/Instructor	0.11	0.08
Assistant professor	-0.06	0.07
Associate professor	-0.05	0.07
Full-time	0.17 *	0.07
Time spent reflecting on teaching practices	0.05 ***	0.03
Model Summary		
Adjusted R-square	0.14	
SE of the estimate	0.92	
F-change statistic	11.87***	

Note. All dichotomous measures were grand mean centered.
[1] Reference group was biological sciences.
[2] Reference group was classroom enrollment 20 or less students.
[3] Reference group was White (non-Hispanic).
[4] Reference group was full professor.
*p < 0.05; **p < 0.01; ***p < 0.001

learning were not found among faculty of different academic ranks or by course level (upper versus lower division).

Table 5 reveals frequencies for items representing the Personal and Social Responsibility scale. Overall, it appears faculty respondents tended to emphasize some learning outcomes more than others. While only a small portion of the respondents structured their course so that students gain a deepened sense of spirituality, well over half said their course helped students develop an understanding of themselves as well as a personal code of values and ethics.

Table 5

Item-level Frequencies for Personal and Social Responsibility Scale

	Quite a bit/Very much
	(%)
Understanding themselves	57%
Understanding people of other racial and ethnic backgrounds	48%
Developing a personal code of values and ethics	56%
Developing a deepened sense of spirituality	17%

For the second regression analysis, course and faculty characteristics were introduced into the model as controls in order to test the relationship between collaborative learning and the promotion of personal and social responsibility. In this model, the Collaborative Learning scale served as an independent measure and the Personal and Social Responsibility was the dependent measure. Table 6 suggests that the model explained a significant portion ($R^2 = .35$) of the variance. Further, controlling for course and faculty characteristics, faculty who used collaborative learning (B=.34; p<.001) are more likely to promote personal and social responsibility in their selected course sections. Time spent on reflecting on teaching practices (B=.02; p<.001) had a weak but significant relationship with the Personal and Social Responsibility scale once controls were entered.

Table 6

Regression Results for Faculty Promoting Personal and Social Responsibility (N=1,434)

	Model 1	
	B	SE
Constant	0.00	0.02
Course Characteristics		
Disciplinary area[1]		
Arts and humanities	0.60***	0.11
Education	0.81***	0.13
Business	0.27**	0.12
Engineering	-0.12	0.15
Physical sciences	-0.26**	0.11
Health and other professionals	0.74***	0.12
Social sciences	0.65***	0.11
Other fields	0.41***	0.11
Lower division	-0.12**	0.05
General education requirement	0.40***	0.05
Class size[2]		
21-50 students	-0.01	0.05
More than 50 students	-0.10	0.08
Faculty Characteristics		
Female	0.08*	0.05
Race/ethnicity[3]		
Asian/Asian American	0.25**	0.10
African American/Black	0.19***	0.06
Latino/Hispanic	0.16	0.13
Other race/ethnicity	-0.01	0.11
Rank[4]		
Lecturer/Instructor	0.10	0.07
Assistant professor	0.05	0.06
Associate professor	0.01	0.06
Full-time	-0.07	0.06
Time spent reflecting on teaching practices[5]	0.02***	0.02
Collaborative learning in selected course[5]	0.34***	0.02
Model Summary		
Adjusted R-square	0.35	
SE of the estimate	0.81	
F-change statistic	34.14***	

Note. All dichotomous measures were grand mean centered.
[1] Reference group was biological sciences.
[2] Reference group was classroom enrollment 20 or less students.
[3] Reference group was White (non-Hispanic).
[4] Reference group was full professor.
[5] Standardized prior to entry into the model.
*p < 0.05; **p < 0.01; ***p < 0.001

As for course characteristics, the model revealed that faculty who taught lower division courses emphasized personal and social responsibility 12% of a standard deviation less than those teaching upper division courses. Controlling for other course and faculty characteristics, faculty tended to promote personal and social responsibility skills two-fifths of a standard deviation more in general education courses than in non-general education courses. The model also indicated that faculty teaching in the physical sciences (B=-.26; p<.001) tended to promote social and personal responsibilities the least while their colleagues in education (B=.81; p<.001) and health and professional fields (B=.74; p<.001) emphasized it the most in their selected course sections. The non-significant predictors in this model were class size, academic rank, and employment status.

Discussion

Collaborative learning is one of the many effective educational practice highly encouraged to improve the quality of undergraduate education on college campuses (AAC&U, 2009; Chickering & Gamson, 1987). Students who engage in collaborative learning gain cognitive and social skills aligned with the needs of a global economy such as becoming more open to diverse perspective (Cabrera et al., 2002; Cruce et al., 2006), improved communication skills (Terenzini et al., 2001), and increased engagement in social and political issues (O'Neill, 2012). Yet, in order for students to receive these benefits, it takes time and careful planning on the part of faculty (Barkley, Cross & Howell Major, 2005; Miller, Trimbur & Wilkes, 1994; Rau & Heyl, 1990). The aim of this study is to explore attributes of faculty and course conditions associated with promoting collaborative learning. The second part of this study focused on the plausible relationship between faculty employing collaborative learning in their selected course and the amount of emphasis placed on personal and social responsibility.

To begin, variation in faculty use of collaborative learning was partly explained by faculty characteristics and context of the course. Significant differences were found among gender and race which was not surprising considering results from similar studies. As the case in this study, women and faculty of color are often cited as using active teaching practices more than men and White faculty, respectively (Kuh, Nelson Laird, Umbach, 2004; Nelson Laird, Garver, & Nikodé-Dossett, 2011). Some researchers point to position of the power that faculty may take in the classroom (Grasha, 1994; Lacey et al., 1998). For example, women and faculty of color are more likely to serve as a facilitator rather than an expert in the classroom (Grasha, 1994; Lacey et al., 1998) which leads them to rely on active learning strategies like collaborative learning to teach students. More work is needed to understand why these differences exist even after controlling for other confounding factors like disciplinary area and classroom size.

Differences were also apparent by employment status. On average, part-time instructors used collaborative learning strategies less than their full-time colleagues. Future research should investigate why this might be the case. One plausible explanation is that to effectively implement collaborative learning as a teaching strategy, a considerable amount of time is needed for planning. Part-time faculty may simply have no time to do this. Further, part-time faculty may be less likely to take full advantage of campus resources like teaching centers and faculty developers. This study found that a positive relationship exists between time spent reflecting on teaching and use of collaborative learning. Although it is unclear if collaborative learning requires that faculty spend more time reflecting on their teaching practices or if faculty who reflect on their teaching practices tend to use collaborative learning, future research should investigate if the relationship is mediated by employment status.

Some aspects of the course context were also significant predictors of faculty using collaborative learning strategies. For instance, collaborative learning was less emphasized in non-general education courses than courses that met a general education requirement. Disciplinary area also had a unique effect on faculty using collaborative learning in the selected course. Faculty in education, business, engineering, and health and other professional fields reported using collaborative learning significantly more than their colleagues teaching in the biological sciences. This finding corresponds to research literature that suggests learning outcomes like openness to diversity and teamwork are positively related to collaborative learning. For fields like business and engineering, faculty may use collaborative learning to develop students' skills in problem solving and communication (Terenzini & et al, 2001). In teacher education, faculty members are encouraged to use collaborative learning to prepare future teachers to meet the needs of diverse learners (Hamer & Oyler, 2004). In the health professions where information is quickly changing, teaching strategies like team-based and problem-based learning are employed to help students gain the skills they need to effectively and efficiently solve problems. Centers for teaching and faculty developers may develop best practices based on these examples so that other disciplines may implement collaborative learning in their core curriculum.

We know that various course and faculty characteristics affect the use of effective teaching practices, and this study strengthens that finding. What was unknown before was whether or not there was a relationship between faculty use of collaborative learning and faculty promotion of personal and responsibility. In the second part of the study this relationship was tested. It makes sense that working with others would contribute to a person's understanding of themselves and others, but we now have evidence that despite faculty and course characteristics

this is, in fact, the case. Both collaborative learning and personal and social responsibility are important for students' learning and development, and it appears that faculty doing one, enhances the other. It is essential then that faculty are given the tools and support to incorporate these effective practices into their courses.

Conclusion

This study sought out to better understand course characteristics and faculty who employ collaborative learning in their courses. Findings may help campus assessment professionals to identify pockets of faculty who need additional help incorporating collaborative learning into their selected courses such as part-time faculty. Further, results identify a teaching technique positively associated with an essential learning outcome, personal and social responsibility. Faculty developers and assessment professionals may want to encourage and support faculty to use collaborative learning in order to develop students' personal and social responsibility.

References

Association of American Colleges and Universities. (2009). *College learning for the new global century: A report from the National Leadership Council for Liberal Education & America's Promise.* Washington, DC: Author.

Barkley, E.F., Cross, K.P., & Howell Major, C. (2005). *Collaborative learning techniques: A handbook for college faculty*. San Francisco: Jossey-Bass.

Barr, R. B., & Tagg, J. (1995). From teaching to learning: A new paradigm for undergraduate education. *Change, 27*(6), 13-25.

Bosworth, K. (1994). Developing collaborative skills in college students. In K. Bosworth & S.J. Hamilton (Eds.), *Collaborative learning: Underlying processes and effective techniques. New Directions for Teaching and Learning, No. 59* (pp. 25-32). San Francisco: Jossey-Bass.

Bruffee, K. A. (1987). The art of collaborative learning: Making the most of knowledgeable peers. *Change, 19*(2), 42-47.

Cabrera, A. F., Crissman, J. L., Bernal, E. M., Nora, A., Terenzini, P. T., & Pascarella, E. T. (2002). Collaborative learning: Its impact on college students' development and diversity. *Journal of College Student Development, 43*(1), 20-34.

Chickering, A.W. (1969). *Education and identity*. San Francisco: Jossey-Bass.

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*, 3-7.

Colbeck, C. L., Campbell, S. E., & Bjorklund, S. A. (2000). Grouping in the dark: What college students learn from group projects. *The Journal of Higher Education, 71*(1). 60 – 83.

Cruce, T. M., Wolniak, G. C., Seifert, T. A., & Pascarella, E. T. (2006). Impacts of good

practices on cognitive development, learning orientations, and graduate degree plans

during the first year of college. *Journal of College Student Development, 47*(4), 365-383.

Dey, E. L., & Associates. (2008). *Should colleges focus more on personal and social

responsibility?* Washington, DC: Association of American Colleges and Universities.

Dey, E. L., & Associates. (2009). *Civic responsibility: What is the campus climate for learning?*.

Washington, DC: Association of American Colleges and Universities.

Evans, N. J., Forney, D. S., & Guido-DiBrito, F. (1998). *Student development in college: Theory,

research, and practice*. San Francisco: Jossey-Bass.

Flannery, J. L. (1994). Teacher as co-conspirator: Knowledge and authority in collaborative

learning. In K. Bosworth & S.J. Hamilton (Eds.), *Collaborative learning: Underlying

processes and effective techniques*. *New Directions for Teaching and Learning, No. 59*

(pp. 15-24). San Francisco: Jossey-Bass.

Grasha, A.F. (1994). A matter of style: The teacher as expert, formal authority, personal model,

facilitator, and delegator. *College Teaching, 42*(4), 142-149.

Gross Davis, B. (1993). *Tools for teaching*. San Francisco: Jossey-Bass.

Johnson, D. W., & Johnson, R. T. (1975). *Learning together and alone: Cooperation,

competition, and individualization.* Englewood Cliffs, NJ: Prentice-Hall.

Johnson, D.W., Johnson, R.T., & Smith, K.A. (1991). *Cooperative learning: Increasing college

faculty instructional productivity* (1991 ASHE-ERIC Higher Education Reports, No. 4).

Washington, DC: The George Washington University, School of Education and Human

Development.

Johnson, D. W., Johnson, R. T., & Smith, K. A. (1998). Cooperative learning returns to college:

What evidence is there that it works? *Change, 30*(4), 27-35.

Kuh, G.D., Nelson Laird, T.F., & Umbach, P.D. (2004). Aligning faculty and student behavior:

　　　Realizing the promise of greater expectations. *Liberal Education, 90*(5), 24-31.

Lacey, C.H., Saleh, A., & Gorman, R. (1998). *Teaching nine to five: A study of the teaching*

　　　styles of male and female professors. Paper presented at the Annual Women in Education

　　　Conference, Lincoln, Nebraska, Oct 11-12.

Marcum Gerlach, J. (1994). Is this collaboration? In K. Bosworth and S.J. Hamilton (Eds.),

　　　Collaborative learning: Underlying processes and effective techniques. New Directions

　　　for Teaching and Learning, No. 59 (pp.5-14). San Francisco: Jossey-Bass.

Miller, J. E., Trimbur, J., & Wilkes, J. M. (1994). Group dynamics: Understanding group success

　　　and failure in collaborative learning. In K. Bosworth & S.J. Hamilton (Eds.),

　　　Collaborative learning: Underlying processes and effective techniques. New Directions

　　　for Teaching and Learning, No. 59 (pp. 33-44). San Francisco: Jossey-Bass.

The National Commission on Excellence in Education. (1983). *A nation at risk: The imperative*

　　　for educational reform. Washington, DC: Author.

The National Institute of Education. (1984). *Involvement in learning: Realizing the potential of*

　　　American higher education. Washington, DC: Author.

Nelson Laird, T.F., Niskodé-Dossett, A.S., & Kuh, G.D. (2009). What general education courses

　　　contribute to essential learning outcomes. *Journal of General Education, 58*(2), 65-84.

Nelson Laird, T.F., Garver, A.K., & Niskodé-Dossett, A.S. (2011). Gender gaps in collegiate

　　　teaching styles: Variations by course characteristics. *Research in Higher Education, 52*,

　　　261-277.

O'Neill, N. (2012). *Promising practices for personal and social responsibility: Findings from a*

National Research Collaborative. Washington, DC: Association of American Colleges and Universities.

Perry, W. G., Jr. (1968). *Forms of ethical and intellectual development in the college years: A scheme*. San Francisco: Jossey-Bass.

Qin, Z., Johnson, D. W., & Johnson, R. T. (1995). Cooperative versus competitive efforts and problem solving. *Review of Educational Research, 65*(2), 129-143.

Ramsden, P. (2003). *Learning to teach in higher education (2nd ed.).* London: Routledge/Falmer.

Rau, W., & Heyl, B. S. (1990). Humanizing the college classroom: Collaborative learning and social organization among students. *Teaching Sociology, 18*(2), 141-155.

Terenzini, P. T., Cabrera, A. F., Colbeck, C. L., Parente, J. M., & Bjorklund, S. A. (2001, January). Collaborative learning vs. lecture/discussion: Students' reported learning gains. *Journal of Engineering Education*, 123-130.

Umbach, P. D., & Wawrzynski, M. R. (2004, June). *Faculty do matter: The role of college faculty in student learning and engagement.* Paper presented at the annual forum of the Association for Institutional Research, Boston, MA.

Wingspread Group on Higher Education. (1993). *An American imperative: Higher expectations for higher education*. Racine, WI: Johnson Foundation.

Appendix A

Component Items and Reliability Coefficients for Dependent Measures

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Faculty Uses of Collaborative Learning ($\alpha= 0.78$)

During the current school year, about how often do you provide students with opportunities to do each of the following in your selected course section? (Never, Sometimes, Often, Very often)

   Give a course presentation with a group of other students

   Exchange feedback with other students to prepare course assignments

   Learn course material by asking and answering questions of other students

   Write a paper with other students for course credit

   Participate in a study group for your course

   Exchange feedback with other students after taking an exam (e.g., debating correct answers.

Faculty Promotion of Personal and Social Responsibility ($\alpha= 0.83$)

To what extent do you structure your selected course section so that students learn and develop in the following areas? (Very little, Some, Quite a bit, Very much)

   Understanding themselves

   Understanding people of other racial and ethnic backgrounds

   Developing a personal code of values and ethics

   Developing a deepened sense of spirituality

Appendix B

Independent Variables

Name	Description
Selected Course Characteristics	
Disciplinary area[1]	Biological sciences[2], Arts and humanities, Business, Education, Engineering, Physical sciences, Health and other professional fields, Social sciences, Other
Course level	0 = Upper division; 1 = Lower division
Gen Ed Requirement	0 = No; 1= Yes
Class size[1]	20 students or less[2], 21-50 students, More than 50 students
Faculty Characteristics	
Gender	0 = Man; 1 = Woman
Race/ethnicity[1]	White (non-Hispanic)[2], Asian/Asian American, African American/Black, Latino/Hispanic, Other race/ethnicity
Rank[1]	Full professor[2], Associate professor, Assistant professor, Lecturer/Instructor
Employment status	0 = Part-time; 1 = Full-time
Time spent reflecting on ways to improve teaching practices[3]	Recoded into continuous variable

[1] Coded dichotomously (0 = not in group, 1 = in group)
[2] Reference group
[3] Hours per week were estimated using the midpoint from the following response options (0, 1-4, 5-8, 9-12, 13-16, 17-20, 21-30, More than 30). For the last category, a value of "33" was assigned.