Assessing the Impact of Community-Based Learning on Students: The Community Based Learning Impact Scal (CBLIS)

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ABSTRACT

Community-based learning integrates problem-based service-learning, volunteerism, and experiential learning across a variety of disciplines. The Community-Based Learning Impact Scale is an instrument developed to measure the impact on a liberal arts university campus. Scale items were generated from focus groups, literature, and existing scales. The goal of this pilot test was to refine wording and scale format while providing preliminary results for the utility of the scale.The instrument is a 43-item measure with 33 items representing proposed constructs civic engagement, institutional/community relations, academic learning, psychological wellbeing, and professional development. Results revealed that, overall; students reported that their CBL experience increased their capacities across multiple personal and professional indicators. Confirmatory and exploratory factor analysis suggested that a 3-factor model fit the data better than the proposed 5-factor model.

Introduction

The purpose of this study is to pilot the Community Based Learning Impact Scale (CBLIS) an instrument that tests the impact of community-based learning at one of three liberal arts campuses for a major University while assessing the impact of community-based learning experiences on students. A community-based impact survey was developed to measure CBL's influence on student learning on the University campus. The sample was composed of undergraduate and graduate students who participated in courses designated as community-based learning courses (CBL) in 2011 and 2012. On the campus, courses are designated community-based learning if they meet the Carnegie criterion, which requires the mutually beneficial exchange of knowledge and resources through collaboration in a context of partnership and reciprocity (2014, December 13). In this study, we used exploratory and confirmatory factor analysis to analyze the items contained on the CBLIS to determine whether it is a useful measurement that could be used as part of a scale or as individual indicators of community-based learning's impact on student learning.

Community-based learning (CBL) is a teaching practice that incorporates student volunteerism, experiential learning, and curriculum for academic credit (Mooney & Edwards, 2001). CBL models incorporate problem-based service-learning, direct service-learning, and community-based research (Mooney & Evans, 2001; Dallimore, Rochefort, & Simonelli, 2010). Though settings where these models take place vary, instructors implementing the models have stressed the importance

of such learning environments across a variety of disciplines such as dentistry (Gadbury-Amyot et al., 2006), public health (Cacari-Stone, Wallerstein, Garcia, & Minkler, 2014), the liberal arts (Barber & Battistoni, 1993), and non-profit management (Carlisle, Kruzich, 2013). Literature currently suggests that community-based learning is associated with increases in interpersonal skills (Durlak et al., 2011), leadership skills (Vogelgesang & Astin, 2000), volunteerism (Astin, Sax, & Avalos, 1999), and with improvements in academic development, civic responsibility, and life skills (Astin & Sax, 1998) with mixed findings for its impact on interpersonal skills (Moely, Miron, Mercer, & Illustre, 2002; Simons & Clearly, 2006; Vogelgesang & Astin, 2000).

The impact of CBL on learning has been reported to be positive for students (Reed-Bouley, Wernli, & Sather, 2012); however, less is known of its impact on community agencies with the exception of Clarke's (2003) process assessment that demonstrated CBL's positive impact on the community and agency. Community-based learning provides opportunities for integrating learning activities in a community environment, which enhances their personal and professional skills (Brownell & Swaner, 2010; Kuh, 2010). Additionally, community-based learning has been found to enhance self-awareness and confidence (Batchelder & Root, 1994) and civic engagement, leading to positive social change (Welch, 2009). For example, Mayhew and Engberg (2011) conducted a longitudinal study among undergraduate students enrolled in service-learning at a large academic institution. Their study examined pretest/posttest responses related to changes in charitable and social justice responsibility after engaging in a community-based learning course. Results revealed that students in service-learning courses were significantly more likely to report gains in charitable responsibility but not an increase in social justice as measured by understanding how to use their power and privilege to benefit society (Mayhew & Engberg, 2011). Crone (2013) examined the role of service-learning on attitudes, civic participation, and sensitivity to social issues and self-efficacy and civic responsibility in relation to the theoretical underpinnings in a social psychology course. In comparison to non-service-learning classes students in a service-learning centered social psychology class had far greater improvements across civic engagement and improvements in academic abilities (Crone, 2013). A positive relationship between civic engagement and service-learning classes has also been found among nursing students (Nokes, Nickitas, & Keida, 2005). Service-learning has also been connected to student's experiences with professional development including understanding themselves better and improvements in communication among pharmacy students (Piper, DeYoung, & Lamsam, 2000). Although assessment tools are in early stages of development, they indicate high potential for improved relationships between institutions and communities when they collaboratively develop and explore community-based learning options that benefit both the university and the community partners (Maurrasse, 2001; 2002). Given the empirical support for including civic engagement, institutional/community relations, academic learning, psychological wellbeing and professional development in the literature these constructs were developed and tested within this study.

In addition to the theoretical and empirical literature informing this work, the setting, institutional goals, and a Theory to Practice grant received by the research team from the Association of American Colleges and Universities informed the decision to focus on five themes: civic engagement, institutional/community relations, academic

learning, psychological well-being, and professional development. Psychological well-being absent from much of the early service-learning scholarship has been included as a main focus of the grant. Descriptions of each of these themes as primary features of the CBLIS are included in the next section.

Method

Survey Instrument

The survey instrument developed for this study is a 43-item online survey designed to generate responses on students' community-based learning experiences. After reviewing the existing literature on service-learning and student outcomes, 33 of the 43 items were identified as representing CBL learning. This collaborative process resulted in the development of 5 core themes (civic engagement, academic learning, psychological well-being, professional development, and institutional relationships). Items were subject to inter-rater reliability where items were consolidated, dropped, or reworded until full consensus was reached by each member of the research team. This collaborative process resulted in the inclusion of 33 of the 43 items in a CBL scale related to the themes: Civic Engagement (5 items), Institutional/Community Relationships (3 items) Academic Learning (8 items), Psychological Well Being (6 items), and Professional Development (11 items). The assignment of the items into these 5 general themes was found to be consistent with the literature on community-based learning and student learning.

Twenty-two of the main items were measured on a 4-point ordinal scale with the following response categories (strongly agree, agree, neutral, disagree, and strongly disagree). Three items were measured on a 3-point ordinal scale (yes definitely, somewhat, no not at all). Seven items were measured on a different 3-point scale (very likely, likely, not likely). In addition, 5 background questions were added to the survey to assess the variations in experiences across a diverse student population. The researchers then reviewed the list and determined that the constructs had face validity as guided by the campus learning goals and objectives. Face validity, refers to judgments about a measurement instrument after it has been constructed to operationalize a theoretical construct (Nunnally, 1967).

Background questions included questions related to gender, race, and educational level (first and second year, third year, fourth year, graduate student, other). Additionally, students were asked whether they had any commitments outside of class that would make it difficult to participate in CBL, ranging from I don't have commitments to 41+ hours per week and the number of hours per week that they worked on their CBL project (0 hours per week, 1-10 hours, 11-15 hours, 16-20 hours, or 21+ hours). Finally, students were asked whether they felt the number of hours on the CBL project was adequate time for completing their work. Response items included "did not have enough time," "it was hard to complete hours," and "I did not worry about time."

Survey questions were subject to inter-rater reliability and another test of face validity resulting in a total of 5 study constructs and 33 items. *Civic Engagement* which measured the extent to which students felt part of a larger collective and collaborative activity aimed to contribute to the larger society (as cited in Adler, 2005) was measured using 5 items ranging from strongly agree to strongly disagree. Students were assessed on whether their CBL experience influenced their sense of connectedness to

their community and to other communities. These items also assessed the impact of their CBL experience on their ability to understand other cultures and global issues. The goal of these items is to determine whether CBL increased a sense of civic engagement among students.

Three items measuring the construct *Institutional/Community Relationships* were included in this survey for the purpose of understanding student perception of the partnership with the community organization they worked with. The first item seeks to measure the likelihood that the respondent would pursue more CBL classes (very likely, somewhat likely, not likely, don't know). The second and third items attempt to understand their perceptions of CBL as beneficial to the respondent and community organization (strongly agrees, agree, disagree, strongly disagree). The final three items attempt to understand whether respondents felt they had enough time to complete their CBL work.

The construct *Academic Learning* contained 8 items that were designed to measure whether students acquired skills needed to be successful in class. Students were asked whether CBL made it more likely that they would be open to new ideas, apply subject-specific knowledge to resolving problems, be creative and collaborative when solving problems, understand consequences to an action, systematically consider competing theories, revise approaches to solving problems, and better understand course material. All items were measured on a 4-point scale from strongly agree to strongly disagree.

Psychological Well Being we defined as a measure of student satisfaction with themselves in the world and whether they find purpose and meaning in life. Under this 6-item construct, students were asked whether their CBL increased the likelihood that they would help and encourage others, volunteer, participate in public affairs (very likely, somewhat likely, not likely). Additionally, psychological wellbeing measured whether respondents had a better understanding of themselves, sense of purpose, and greater satisfaction with life (yes definitely, somewhat, no not at all).

Finally, *Professional Development* measured the extent to which CBL had an impact on professional skills needed in the workforce. This 11-item construct asked respondents whether their skills increased and whether they are more likely to use specific skill sets across a range of indicators, including problem solving, analyzing social issues, justifying their position through communication, considering multiple interpretations, reflecting on how they do their job (strongly agree, agree, disagree, strongly disagree, don't know). Additionally, this construct asked respondents to reflect on whether their career opportunities have expanded, whether they take greater initiative, and whether they have developed greater dependability (yes, definitely, somewhat, no not at all).

We hypothesize that the survey questions can be aggregated to reflect any of the 5 constructs under study or can be used as single-item scores. For example, each person's rating of the 8 items under academic learning ("Due to my community-based learning experience, in the future I am more likely to...") can be averaged to reflect an individual's average score on the construct "academic learning," resulting in an estimate of that respondents' rating of their academic development. This score would then be used to investigate a hypothesis that tests its association with remaining items on the survey.

Focus Groups

Concurrently, while piloting the survey, focus groups were held to collect qualitative information on the community-based learning experiences of students, staff, faculty, and community partners. The intent of the focus groups was to enlist the participants in the creation of the surveys, while also bringing members from all the constituents together to share their views on what makes a strong community-based learning experience. The research plan was to create three distinct surveys—one for students, one for faculty and staff, and one for community partners. As the work progressed, the need for inclusion of the community for the development of *all* of the surveys became obvious for two reasons. First, the research literature on community-based learning rarely addressed the experiences of community partners. Second, effective collaboration between universities and community partners means collaboration in all parts of the process (Clarke, 2003; Maurrasse, 2001; 2002). Three focus groups were held for 1.5 hours each and each focus group included community partners, staff, faculty, and students.

Questions asked in the focus groups concentrated on (a) meaningful outcomes, (b) criteria for determining success, (c) recommendations for improving evaluation of the CBL experiences, (d) indicators of a good match between the community-based organization, the university, and students, (e) indicators that volunteers have been changed, (f) indicators of professional life having been affected by CBL, (g) indicators of meaningful relationship between the university and the community organization, (h) suggestions for improving partnerships between university and community partners, and (i) questions that should be asked on a survey about community-based learning?

Constructs and variables identified in the focus groups were compared to the items identified by the research team and informed further development of the survey. The richness of the qualitative data from the focus groups influenced the process of revising the survey as the research team regularly asked “How can we collect data with qualitative depth through a large-scale quantitative process?”

Participants

End-of-quarter, online survey responses were collected from a sample of 195 graduate and undergraduate students registered in community-based learning courses through the Office of Community-Based Learning and Research (OCBLR). These students ranged in level of participation in community-based learning classes from classes that provide full immersion into a community-based setting to others where students engaged in 1-2 hours of community-based learning per week. Students who were not registered for a course with a community-based learning component did not receive the survey or the invitation. Study approval was granted by the University's Internal Review Board for Human Subjects and data were collected in 2011 and 2012.

Procedure

Participants were informed of the purpose of the survey, their rights as research participants, their participation in the survey was voluntary, and their responses were confidential. Informed consent was obtained through a consent statement at the beginning of the survey. The survey was administered online to students who completed a CBL course regardless of the discipline focus of the course. An end-of-quarter email invitation to complete the survey containing information on the nature of

the study, as well as an explanation of its purpose and explanation of voluntary consent and confidentiality. Students were then invited to complete the confidential survey.

Analysis Strategy

Survey items were reviewed by investigators to loosely determine the content validity of each item. Content validity refers to "the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment" (Haynes et al., 1995, pp. 238). The responses represented the targeted constructs under study and were relevant to the assessment of community-based experiences in the general student population and, as a result, we proceeded to test the factor model for this instrument.

To analyze univariate descriptive statistics respondents' data was transferred to SPSS 18.0 (2009), which was used to run frequencies on the background information related to the participants' gender, class level, and racial background. Chi-square analysis provided further exploration through bivariate statistics to determine the association between class level and commitments; gender and commitments; gender and likelihood to participate in community-based learning activities; and gender with community-based learning knowledge and experiences.

Confirmatory factor analysis (CFA) was conducted in M-Plus version 7.3 (Muthen & Muthen, 1998-2011) to determine whether survey items reveal a common variance measure and support the theoretical rationale for the 5 constructs in our study (Civic Engagement, Institutional/Community Relationships, Academic Learning, Psychological Well Being, and Professional Development). Missing items were coded as -99 and the weighted least squares means and variances estimation (WLSMV) was used for the categorical data in this model because it does not require the normality assumption (Brown, 2006). Two items were dropped because of administrative error. There were a total of 195 participants in this study and 33 scale items yielding a ratio of approximately 5 items to 1 participant. This data analysis was assessed to be appropriate based on Tabachnick and Fidell's (2007) method, which indicated a sample size of 150 is considered sufficient when item loadings are above .3. In addition, a general guideline of 5:1 ratio between sample size and free parameters is consistent with Bentler and Chou (1987). Given this criteria, our examination indicated this dataset is suitable for factor analysis. Chi square as a model fit indices is highly influenced by sample size (Brown, 2006); therefore, to assess model fit, this study uses RMSEA, CFI (Suhr, 2006), eigenvalues, and a scree plot (Mertler & Vannatta, 2002). Consistent with Comrey and Lee (1992) factors were then assessed to determine whether items contained factor loadings greater than .63 interpreted as "very good" or .71 interpreted as "excellent."

Results

Descriptives

Sixty-two percent of respondents who completed the survey instrument were female (see Table 1). The majority of respondents (61%) identified as White (Non-Hispanic), 13% were Asian American, 11.4% other races, 5.7% Bi-racial or Multi-racial. A small number of respondents identified as black (4%) or Native American or Alaskan Native or Native Hawaiian or Pacific Islander (1.5%). Fourteen percent of respondents were first and second year students, 27% third year students, 32% fourth year students,

and 24% where graduate students. When asked whether students had time commitments outside of their class commitments, the majority of responses indicated they had 41 or more hours per week of commitments outside of class (28%) while 20.5% indicated having approximately 21% hours per week of commitments outside of class. The majority of students indicated that they needed approximately 1-10 hours per week (80.3%) of hours per week to work on their CBL project. Interestingly, when asked whether students felt the time provided to complete the community-based work was adequate 62% indicated they did not worry about time it took to conduct the CBL work and 26% indicated it was hard to complete the community-based project hours. Only 12% indicated they did not have enough time. This suggests that 1-10 hours per week on a community-based project for many students may be at their capacity for a project of this magnitude.

Table 1. Sample Characteristics of Student Respondents.

	Total Sample	n	%
Total Sample	N=194		
Gender			
Female		121	62.7
Male		71	36.8
Race	193		
White (Non-Hispanic)		118	61.1
Black/African American		8	4.1
Native American or Alaskan Native		1	0.5
Native Hawaiian or Pacific Islander		2	1
Asian American		25	13
Hispanic/Latino American		6	3.1
Bi-racial or Multi-racial		11	5.7
Other		22	11.4
Educational Level	194		
First and second year		28	14.4
Third year		53	27.3
Fourth year		63	32.5
Graduate student		45	23.2
Other		5	2.6

Commitment outside class	195		
I don't have commitments		18	9.2
1-10 hours per week		23	11.8
11-20 hours per week		36	18.5
21-30 hours per week		40	20.5
31-40 hours per week		23	11.8
41+ hours per week		55	28.2
Numbers of hours worked on CBL	193		
0 hours per week		2	1
1-10 hours per week		155	80.3
11-15 hours per week		25	13
16-20 hours per week		4	2.1
21 or more hours per week		7	3.6
Number of hours was adequate time	193		
I did not worry about time		23	11.9
It was hard to complete hours		51	26.4
I did not worry about time		119	61.7

Chi square analysis revealed no significant differences between class level and hours of commitment outside of class and class level and gender. However, there is a significant association between genders: women were more likely to help and encourage others c^2 (6, N=192) =13.270, p<0.04). On the other hand there is no significant association between gender and the likelihood to volunteer c^2 (6, N=191=19510.76, p>0.096), participate in organizations and or public affairs c^2 (6, N=191)=8.074, p>0.233), and pursue more classes that have a community-based partnership c^2 (6, N=190)=6.405, p>0.379. Compared to males (13.5%) more female students (25.4%) agreed and 31% of female students versus 13.5% of male students strongly agreed that the community-based learning knowledge and experiences had mutual benefit to the community organization and themselves (c^2 (10, N=190)=36.081, p<0.001).

Table 2 contains the results of the CBL survey grouped according to proposed factors and general themes identified by the researchers. Overwhelmingly, most students agreed or strongly agreed that CBL was beneficial to both the organization and community and in fact, most students strongly agreed that CBL was beneficial to the students, the university, and the community partners. Further, most students indicated

that they were very likely to volunteer (49.2%) help encourage others (55.8%), and participate in organizations and public affairs (48.3%) indicating that CBL did in fact improve potential for community engagement in the future. Data indicated that personal growth emerged from the CBL experience, since students indicated they definitely understand themselves better after participating in CBL (41.6%). Finally, there was a moderate response to the question "would be more likely to pursue more classes that have a community-based partnership (strongly agree 38.1% and agree 34%)." Understandably this could be related to the amount of work that is required of a CBL or that perhaps one CBL course is enough to have an impact on civic engagement, institutional/community relationships, academic learning, psychological wellbeing and professional development. Should the CFA result in an unsupported factor structure an exploratory factor analysis will be used to determine a new factor structure to identify a better fitting model.

Table 2: Summary Results of Individual Items from the Community Based Learning Impact Scale.

	Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
N=195	**%**	**%**	%	%
I am more connected to MY community[a]	28.0	41.6	15.7	3.0
I am more connected to communities OTHER THAN my own[a]	25.0	39.1	21.8	2.5
I am able to meet SOME of the needs of the community[a]	28.0	49.2	11.2	2.0
I have realized there are different perspectives on (global) international issues[a]	26.4	39.1	11.2	1.5
I have developed a better understanding of cultures other than my own[a]	30.0	42.6	8.6	2.6
Had mutual benefit to the community organization and me[b]	48.7	38.1	6.1	1.5
Had adequate communication between the community organization and me[b]	42.6	36.0	9.1	7.1
Be open to new Ideas[c]	40.1	40.1	10.2	0.5
Apply subject-specific knowledge to resolve a problem[c]	36.5	41.6	9.6	0.5
Be creative when problem solving[c]	35.5	42.5	12.2	1.5
Collaborate with others when solving problems[c]	39.6	43.1	8.1	2.0
Understand the consequences to an action[c]	33.0	43.7	8.6	1.5
Systematically consider competing theories[c]	30.0	42.1	11.2	1.5
Try a solution, assess its effects, and revise my approach to solving the problem[c]	37.6	41.6	9.1	1.5
Better understand course readings, lectures, and discussions[c]	32.0	43.1	10.7	2.5
Problem solving[d]	24.4	47.7	12.0	2.0
Identifying social issues[d]	31.0	50.8	8.0	1.0

Analyzing social issues[d]	31.5	47.2	10.2	1.0
Evaluating competing claims[d]	21.3	40.96	14.7	1.5
Justifying my position[d]	30.0	45.2	9.1	1.5
Communicating with others[d]	40.6	44.2	9.1	3.0
Considering multiple interpretations[d]	36.0	42.6	8.1	2.0
Reflect on how I do my job[d]	35.5	44.2	8.6	1.0

	Yes Definitely	**Somewhat**	**No Not at All**
My career opportunities expanded[d]	28.9	42.1	19.3
I have developed greater initiative[d]	39.1	44.7	12.2
I have developed greater dependability[d]	36.5	38.1	16.2

	Very Likely	**Somewhat Likely**	**Not Likely**
Pursue more classes that have a community-based partnership[e]	38.1	34.0	21.8
Help and/or encourage others[e]	55.8	33.0	7.1
Volunteer[e]	49.2	38.1	8.6
Participate in organizations and/or public affairs[e]	48.25	35.5	12.2
I better understand myself[e]	41.6	39.1	13.2
My satisfaction with life as a whole has increased[e]	33.0	42.1	16.8
My sense of purpose in life has increased[e]	41.6	39.1	13.2

a=Civic Engagement; b=Institutional/Community Relations; c=Academic Learning; d=Professional Development; e=Psychological Well-being.

Factor Analysis Results

Confirmatory factor analysis was performed to determine whether the 5 constructs developed in this study determined the shared variance of the items within each factor. The 33 items were included as indicators in a 5-factor measurement model. The analysis was performed in Mplus with a Weighted Least Squares Mean Variance (WLSMV) estimator for categorical variables (Brown, 2006). Fit was assessed using the chi-square, CFI and RMSEA indicators. Model fit indices were examined to determine how well the proposed model represented the data. For this analysis, model fit indices indicate a poor fit (χ^2=31794.7, df=561, p<.0001; CFI=.963; RMSEA = .106). As a result, we ran an exploratory factor analysis to determine the number of factors in this analysis that would more appropriately fit the data.

Thirty-three items were submitted to an exploratory factor analysis with GEOMIN rotation with eigenvalue criteria of greater than 1 to determine the common variance among survey items. The results of this analysis produced 3 factors with eigenvalues ranging from 25.38 - 1.3. Scree plot was used to assess the factor results. The results of this process led to the initial retention of 3 factors and their eigenvalues comprising 14 (λ=25.38), 15 (λ =2.195) and 5 (λ =1.31) items. An examination of the scree plot suggests that a 2-factor model as a more appropriate fit for the data, although a slight decline still existed between factor 2 and 3. However, there appeared to be some crossover between factor loadings, and therefore, authors retained 3 factors (See Table 3) consistent with the summary recommendation of Fabrigar and colleagues who suggested that for accuracy, over-factorization would reduce chances of substantial error with specifying too few factors (Fabrigar, Wegener, MacCallum, Strahan, & Erin, 1999).

Table 3. Summary of Exploratory Factor Analysis Results for the Community Based Learning Impact Scale Using Weighted Least Squares Means and Variances Estimation (N=195).

	Factor Loadings		
Item	**Civic Engagement**	**Critical Thinking**	**Self-Awareness**
Had adequate communication between the community organization and me	**0.908**	0.584	0.338
I have developed greater dependability	**0.905**	0.757	0.439
My career opportunities expanded	**0.867**	**0.831**	0.462
Skills increased in considering multiple interpretations	**0.863**	0.736	0.565
I will volunteer	**0.850**	0.565	0.560
Skills have increased in analyzing social issues	**0.849**	0.547	0.344
I have developed greater initiative	**0.849**	**0.864**	0.592
I believe my work had mutual benefit to the community partner and to me	**0.827**	0.757	0.460
I have realized there are different perspectives on (global) international issues	**0.811**	0.673	0.571
More likely to help and encourage others	**0.804**	0.709	0.591
More likely to participate in organizations and/or public affairs	**0.784**	0.552	0.596
I have developed a better understanding of cultures other than my own	**0.772**	0.603	0.482
More likely to pursue more classes that have a community based partnership	**0.757**	0.636	0.546
More likely to be open to new ideas	0.746	**0.879**	0.496
My sense of purpose in life has increased	0.742	0.634	**0.797**
Skills have increased in communicating with others	0.695	**0.914**	0.563
My satisfaction with life as a whole has increased	0.690	0.613	**0.831**
I can consider multiple interpretations of ideas or events	0.672	**0.907**	0.488
Skills have increased in analyzing social issues	0.667	**0.869**	0.602
More likely to collaborate with others when solving problems	0.667	**0.900**	**0.803**
I better understand myself	0.660	0.539	0.66
I am able to meet some of the needs of the community	0.647	0.787	0.684
Skills have increased in identifying my position	0.640	**0.965**	0.385
I am more likely to be creative when problem solving	0.640	**0.843**	**0.782**
More likely to apply subject specific knowledge to resolve a problem	0.639	**0.925**	0.501
I am more connected to communities other than my own	0.637	**0.875**	**0.759**
More likely to reflect on how I do my job	0.623	**0.962**	0.378

I am more connected to my community	0.618	**0.890**	**0.743**
More likely to understand the consequences to an action	0.612	**0.880**	**0.717**
More likely to try a solution, assess its effects, and revise my approach to solving the problem	0.601	**0.854**	**0.728**
More likely to better understand course readings, lectures, and discussions	0.601	**0.887**	0.76
Skills have increased in evaluating competing claims	0.592	**0.968**	0.327
More likely to systematically consider competing theories	0.532	**0.848**	**0.721**

Discussion

The purpose of this study was to examine the impact of community-based learning on student outcomes while testing the proposed factor structure of a newly developed CBL outcomes measure. Using data from an end-of-quarter, online survey, we examined self-reports of the impact of student learning in their community-based learning courses. Overall, results indicate that community-based learning was extremely beneficial to students in multiple ways and that there was a sense of mutual benefit for both the student and organization, which we hope would be the experience of any partnership between an institution and community. Interestingly, females in this study were significantly more likely than males to agree that CBL was beneficial. It was also interesting to note that CBL seemed to enhance student desire to participate not only organizationally but also in volunteer efforts in general. This increased interest in volunteering after participating in a CBL course is consistent with the findings of Prentice (2007), whose study among community college students yielded an increase in civic engagement on a posttest assessment of civic engagement in which students described themselves as more "personally responsible citizens."

The majority of students in our study agreed or strongly agreed to feeling a sense of civic engagement or responsibility. Community-based learning also appeared to strongly improve learning outcomes, particularly in the important area of being able to work with others and being open to new ideas and solutions, intellectual skills that are highly sought by employers seeking to hire college graduates (Association of American Colleges and Universities, 2009). A large percentage of students felt that they would now be more likely to help and encourage others, which is consistent with findings in other studies on the impact of CBL on student learning (Astin & Sax, 1998; Vogelgesang & Alexander, 2000). In particular, female students were significantly more likely to report a mutual benefit of the community-based learning experience. Though we were unable to find a study to date that examined these gender differences in college-age students, these findings are consistent with Miller's study (1994) in which female students were more likely than male students to support a requirement that community service be mandatory in school programing. The level of schooling did not have a significant impact on any of the variables measured in this study.

Preliminary results of the confirmatory factor analysis of a CBL outcomes measure revealed little support for a 5-factor solution, as proposed by the developers, to assess the impact of community-based learning outcomes. This model specified that there were 5 factors captured in the measurement: Civic Engagement,

Institutional/Community Relationships, Academic Learning, Psychological Well Being, and Professional Development. Based on the model fit indices, our results indicate that the fit was not sufficient to warrant the proposed 5-factor solution. We attempted to adjust the model fit by dropping 2 items with low factor loadings to enhance model fit; however, the drop did not improve the 5-factor solution. From the results of the confirmatory factor analysis, we concluded that an exploratory factor analysis was needed to assess the common variance among the 33 items in the CBLIS scale.

We then conducted an exploratory factor analysis to determine an alternative factor structure. Results of this analysis were initially evaluated using a scree plot (Mertler & Vannatta, 2002), which indicated a 2-factor solution. Examination of the factor loadings indicated that the 2-factor solution produced a number of cross-loadings, and the developers assessed the results based on a 3-factor solution. When we considered a 3-factor solution, we found a more defined factor solution with fewer cross-loadings and a better fit for the data: Factor 1 ("Civic Engagement"), the extent to which students felt part of a larger collective and collaborative activity aimed to contribute to the larger society (as cited in Adler, 2005); Factor 2 ("Critical Thinking"), which suggests "skillful, responsible thinking that facilitates good judgment" (Lipman, 1988, pg. 39); Factor 3 ("Self-Awareness"), the ability to be self-reflective when "perceiving and processing" their experiences (Morin, 2011). Note, if we were to include cross-over items between factor 2 and 3, we would suggest "Social Capital," the sense of connectedness to their community to describe the clustering.

One area for continued research is to assess whether the 3-factor solution can be improved by dropping items that may be measuring similar concepts. For example, the 3 items "my career opportunities expanded" (cross-loaded with factors 1 and 2), "I believe my work had mutual benefit to the community partner and to me" (cross-loaded with factor 2), and "more likely to collaborate with others when solving problems" (cross-loaded with factors 2 and 3) are 3 items that, individually, could provide information on the unique experience and impact of the community partner collaboration on a short-form survey but may be dropped from the factor analysis. Interestingly, despite our preference for the 5 distinct categories the factor analysis in this study specified the 3 constructs Civic Engagement, Critical Thinking, and Self Awareness. This instrument needs to be refined and further tested to include a reliability and validity test, and though we believe a parallel analysis statistical procedure would be a logical next step (Ledesma & Valero-Mora, 2007), developers of the mplus analysis program reported that it performed poorly and was not included in final mplus program (Muthen, 2013). Further, this instrument needs to be tested to see if the factors are replicable across more diverse samples and across institutional settings. Unresolved is the question, "Would an alternative factor model produce a better characterization of the CBL data?" Therefore, caution is still necessary given that loadings may factor in unexpected ways especially when learning outcomes can be attributed to more than one factor or produce variations in impact (Celio, Durlak, & Dymnicki, 2011). However, in terms of the context of this analysis and the analytic procedure which seeks to maximize common variance and describe the variance in terms of a latent construct, the sample provides support for relatively perspicuous findings related to civic engagement, critical thinking, and self-awareness. Further, findings from single-item responses provide moderate support for the use of the CBL scale as both parts of larger constructs or items used singularly and

drawn from the 3 constructs for evaluation purposes in CBL program offices, and/or campuses with CBL course offerings. Eventual replication is assumed, in which case researchers should consider a 2-factor and 3-factor model as well as the inclusion of items guided by the consideration of cross-loadings, correlation, and similarly worded items. In addition to the quantitative analysis, other items to be considered when determining the appropriateness of a survey are the goals, specific setting, and values of the university and community partners (Clarke, 2003). Nonetheless, for the present study the 3-factor model of the CBL measure may be the optimum solution for characterizing this dataset.

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References

Adler, R. (2005). What do we mean by “civic engagement”? *Journal of Transformative Education*, *3*(3), 236-253. doi: 10.1177/1541344605276792.

Association of American Colleges and Universities. (2009). *The leap vision for learning: Outcomes, practices, impact, and employers’ views*. Washington, DC: Association of American Colleges and Universities.

Astin, A., & Sax, L. (1998). How undergraduates are affected by service participation. *Journal of College Student Development*, *29*(3), 251-263. http://www.coastal.edu/media/academics/servicelearning/documents/How%20Undergraduates%20are%20Affected%20by%20Service%20Participation.pdf

Astin, A., Sax, L., & Avalos, J. (1999). The long-term effects of volunteerism during the undergraduate years. *The Review of Higher Education*, *21*(2), 187-202.

Barber, B., & Battistoni, R. (1993). A season of service: Introducing service learning into the liberal arts curriculum. *The American Political Science Association*, *26*(2), 235-240. doi: 10.2307/419837

Batchelder, T., & Root, S. (1994). Effects of an undergraduate program to integrate academic learning and service: Cognitive, prosocial cognitive, and identity outcomes. *Journal of Adolescence*, *17*, 341-355. doi:10.1006/jado.1994.1031 https://www.ydae.purdue.edu/lct/HBCU/documents/Effects_of_an_UG_Program_to_Integrate_Academic_Learning_and_Service.pdf

Bentler, P., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, *16*(1), 78-117. doi:10.1177/0049124187016001004 http://www.unt.edu/rss/class/Jon/MiscDocs/BentlerAndChou_1987.pdf

Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York: Guildford.

Brownell, J., & Swaner, L. (2010). *Five high-impact practices: Research on learning outcomes, completion and quality*. Washington, DC: Association of American Colleges and Universities.

Cacarci-Stone, L. Wallerstein, N., Garcia, A., & Minkler, M., (2014). The promise of community-based participatory research for health equity: A conceptual model for bridging evidence with policy. *American Journal of Public Health*, *104*(9), 1615-1623. doi: 10.2105/AJPH.2014.301961

Carlisle, S., & Kruzich, J. (2013). Increasing student and organizational evaluation capacity through collaborative community-based program evaluation. *Journal of the Scholarship of Teaching and Learning*, 13(4), 85-102.

Celio, C., Durlak, J., & Dymnicki, A. (2011). A meta-analysis of the impact of service-learning on students. *Journal of Experiential Education*, *34*(2), 164-181. doi: 10.1177/105382591103400205 http://www.stjohns.edu/sites/default/files/documents/adminoffices/asl-meta-analysis-effects-asl-students.pdf

Clarke, M. (2003). Finding the community in service-learning research: The 3-"I" Model. In S. H. Billig & J. Eyler (Eds.), *Deconstructing service-learning: Research exploring context, participation, and impacts* (pp. 125–146). Greenwich, CT: Information Age Publishing.

Crone, T. (2013). The effects of service-learning in the social psychology classroom. *Journal of Service Learning in Higher Education*, *2*, 62-74.

Comrey, A., & Lee, H. (1992). *A first course in factor analysis* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.

Dallimore, E., Rochefort, D., & Simonelli, K. (2010). Community-based learning and research. In C Wehlburg (Eds.), *New Directions for Teaching and Learning* (pp. 15-22). San Francisco, CA: Wiley Publishers.

deVellis, R. (2003). *Scale development: Theory and applications* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. doi: 10.1111/j.1467-8624.2010.01564.x

Fabrigar, L., Wegener, D., MacCallum, R., Strahan, R., & Erin, J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272-299. doi:10.1037/1082-989X.4.3.272 http://ww.w.statpower.net/Content/312/Handout/Fabrigar1999.pdf

Gadbury, C., Simmer-Beck, M., McCunniff, M., & Williams, K. (2006). Using a multifaceted approach including community-based service-learning to enrich formal ethics instruction in a dental school setting. *Journal of Dental Education*, *70*(6), 652-661.

Haynes, S., Richard, D., & Kubany, E. (1995). Content validity in psychological assessment: A functional approach to concepts and methods. *Psychological Assessment*, *7*(3), 238-247. doi:10.1037/1040-3590.7.3.238

IBM Corp. (2013). *IBM SPSS Statistics for Windows*, Version 22.0. Armonk, NY: IBM Corp.

Kuh, G. (2010). High-impact practices: Retrospective and prospective. In J. E. Brownell, & L. E. Swaner (2010), *Five high-impact practices: Research on learning outcomes, completion and quality* (pp. v-xiii). Washington, DC: Association of American Colleges and Universities.

Ledesma, R., & Valero-Mora, P. (2007). Determining the number of factors to retain in EFA: an easy-to-use computer program for carrying out parallel analysis. *Practical Assessment, Research & Evaluation*, *12*(2). Available online: http://pareonline.net/pdf/v12n2.pdf

Lipman, M. (1988). Critical Thinking-What can it be? *Educational Leadership*, *46*(1), 38-43.

Maurrasse, D. J. (2001). *Beyond the Campus*. New York: Routledge.

Maurrasse, D. J. (2002). Higher education-community partnerships: Assessing progress in the field. *Nonprofit and Voluntary Sector Quarterly*, *31*(1), 131–139. doi:10.1177/0899764002311006

Mayhew, M., & Engberg, M. (2011). Promoting the development of civic responsibility: Infusing service-learning practices in first-year "success" courses. *Journal of College Student Development*, *53*(1), 20-38. doi:10.1353/csd.2011.0007

Mertler, C., & Vannatta, R. (2002). *Advanced and multivariate statistical methods; Practical application and interpretation* (2nd Ed.). Los Angeles: Pyrczak Publishing.

Miller, F. (1994). Gender differences in adolescents' attitudes toward mandatory community service. *Journal of Adolescence*, *17*, 381-393.

Moely, B., McFarland, M., Miron, D., Mercer, S., & Ilustre, V. (2002). Changes in College Students' Attitudes and Intentions for Civic Involvement as a Function of Service-Learning Experiences. *Michigan Journal of Community Service Learning, 9*, 18-26.

Mooney, L., & Edwards, B. (2001). Experiential learning in sociology: Service learning and other community-based learning initiatives. *Teaching Sociology, 29* (2), 181-194.

Morin, A. (2011). Self-Awareness Part 1: Definition, measures, effects, functions, and antecedents. *Social and Personality Psychology Compass*, *5*(10), 807-823. doi:111/j.1751-9004.2011.00387.x

Muthen, B. (2013, June 04). Parallel analysis for categorical data [Weblog comment]. Retrieved from http://www.statmodel.com/discussion/messages/8/11966.html?1393952682.

Muthen, L., & Muthen, B. (1998-2011). *Mplus User's Guide*. Sixth Edition. Los Angeles, CA: Muthen & Muthen.

Nokes, K., Nickitas, D., Keida, R., & Neville, S. (2005). Does service-learning increase cultural competency, critical thinking, and civic engagement? *Journal of Nursing Education,* 44(2), 65-70.

Nunnally, J. (1967). *Psychometric Theory*. New York; McGraw Hill.

Simons, L., & Clearly, B. (2006). The influence of service learning on students' personal and social development. *College Teaching, 54*(4), 307-319. doi:10.3200/CTCH.54.4.307-319

Piper, B., DeYoung, M., & Lamsam, G. (2000). Student perceptions of a service-learning experience. *American Journal of Pharmaceutical Education, 64*, 153-165.

Prentice, M. (2007). Service learning and civic engagement. *Academic Quest*, *20*, 135-145.

Reed-Bouley, J., Wernli, M., & Sather, P. (2012). Student employment and perceptions of service-learning. *Journal of Service-Learning in Higher Education*, *1*, 1-29.

Suhr, D. (2006). Exploratory or confirmatory factor analysis? *Statistics and Data Analysis*, 31, Retrieved November 20, 2014 from http://www2.sas.com/proceedings/sugi31/200-31.pdf

Tabachnick, B., & Fidell, L. (2007). *Using Multivariate Statistics* (5th edn). Boston: Pearson Education.

University of Washington Bothell. (2014, December 13). **Community-based learning and research course designation.** Retrieved from https://www.uwb.edu/cblr/faculty-resources/cbl-course-designation

Vogelgesang, L., & Astin, A. (2000). Comparing the effects of community service and service-learning. *Michigan Journal of Community Service Learning*, *7*, 25-34.

Welch, M (2009). Moving from service-learning to civic engagement. In B. Jacoby & Associates (Eds.), *Civic Engagement in Higher Education: Concepts and Practices* (pp. 174-194). San Francisco: Jossey-Bass.