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Cover Page Footnote

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Introduction

Schneider (2013) notes, higher education is called to "work at the intersections of diversity and democracy . . . based in an understanding that diversity is a key resource for educational excellence and a critical if often undervalued element of civic culture in the United States." This study speaks to the intersection of diversity and democracy. The diversity element is that under-resourced students are overrepresented at community colleges and can therefore be a proxy for underrepresented students (Brownell & Swaner, 2009). The democracy element is students' civic learning outcomes (CLO), or skills in listening and communication, diversity, and consensus building. The 2012 report, *A Crucible Moment*, states that our democracy is in decline and offers three recommendations for higher education to improve it: service-learning, dialogue, and other collaborative experiences. In other words, what *A Crucible Moment* (2012) recommends are high impact practices (HIPs). Kuh (2008) established HIPs which are best practices for experiential learning that, when done well, help more students learn, persist, and graduate (Brownell & Swaner, 2009; Kuh et al., 2013). Examples of high impact practices include: capstone courses and projects, collaborative assignments and projects, common intellectual experiences, diversity/global learning, eportfolios, first-year seminars and experiences, internships, learning communities, service learning, community-based learning, undergraduate research and writing-intensive courses. We know that HIPs have a positive effect on academic learning outcomes. The purpose of this study was to find out whether HIPs have an effect on civic learning outcomes, especially among community college students.

Howe and Fosnacht (2017) and Weiss and Fosnacht (2018) first brought together HIPs and civic outcomes to advance the discussion on the future of democracy by assessing how participation in HIPs is correlated with CLOs. Howe and Fosnacht (2017) and Weiss and Fosnacht (2018) analyzed senior- and first-year responses, respectively, to the 2014 National Survey of Student Engagement (NSSE) civic engagement module. These two studies found that at baccalaureate institutions, five HIPs (service-learning, learning communities, undergraduate research, study away, and senior projects) have a substantial effect on CLOs (Howe & Fosnacht, 2017; Weiss & Fosnacht, 2018). But are Howe and Fosnacht's (2017) and Weiss and Fosnacht's (2018) findings true for all students? Historically, community college students are some of the most diverse students in the nation in terms of race; first-generation and working-class students; students affected by Deferred Action for Childhood Arrivals and the Development, Relief, and Education for Alien Minors Act (DREAMers); English Language Learners; parents; and employees (Murphy, 2014). Community colleges are also under-resourced and serve students who have historically been underserved and disenfranchised (Cahill & Fine, 2016), which could mean that the way they do HIPs and the impact of HIPs may be different.

Research Design

Because this study intended to build on Howe and Fosnacht (2017) and Weiss and Fosnacht (2018) and see if their findings were generalizable to all students, this study analyzed responses to the 2019 Community College Survey of Student Engagement (CCSSE). This survey is a national data set of a cross-sectional (single point in time), one-way group survey, primarily with closed-ended questions. The data are nonparametric (ordinal and Likert scale). After delineating the descriptive statistics, the test of significance is a chi-square test, which assesses the association between groups based on one input categorical variable and one outcome categorical variable at a time (Creswell & Creswell, 2018).

The CCSSE is a validated survey created in 2001 at the Community College Leadership Program at The University of Texas at Austin (CCSSE, 2021). The survey is based on the NSSE, which was created in 1998. These two surveys complement each other by serving different populations: community colleges and baccalaureate colleges, respectively. Continuing community college students take the survey in class, on paper during the spring of each year. The survey asks about students' general college experience, with a focus on "educational practices and student behaviors associated with higher levels of learning, persistence, and completion" (CCCSE, 2012, p. 4). This study tests the hypothesis that HIPs are related to greater CLOs among community college students.

The study considers participation in five HIPs (input variables): first-year experiences, learning communities, collaborative assignments and projects, service-learning, and internships. The study examines the association between students' aforementioned participation and self-reported assessments of their Civic-Minded Graduate skills (outcome variables): communication and listening, diversity, and consensus-building (Steinberg, Hatcher, & Bringle 2011) because the "capacity to interact and work collectively across difference is something expected of all graduates in the 21st century, not just an option for the privileged few" (Schneider, 2013). The researcher developed the proxy for communication and listening as 'discussed ideas from your readings or classes with others outside of class.' The proxy for diversity is 'had serious conversations with students who differ from you.' The proxy for consensus-building is 'working effectively with others.'

The null hypothesis stated that there is no significant relationship between the acquisition of CLOs and participation in HIPs. This study analyzed secondary data collected from the CCSSE, and the hypothesis was either rejected or accepted based on its significance level (p-value). In other words, if the p-value was low, then there was a high probability that the result was not due to random chance; the null hypothesis would therefore be rejected, and the conclusion would be that a relationship exists between CLOs and HIPs. It is worth noting that even evidence of a relationship through chi-square tests for independence in an observational study does not imply causation, since many unknown variables can influence students' decisions to participate or not. Rather, it indicates that increased levels of one variable (as measured by binary or Likert items) are associated with increased levels of the other variable. In other words, an increased participation in HIPs is associated with increased levels of CLOs among community college students.

Data Collection

Because of the categorical nature of the data, chi-square was used to determine the association between groups based on one input variable and one outcome variable at a time (Creswell & Creswell, 2018). The researcher used chi-square tests and contingency tables where the row variables are inputs and the column variables are outcomes. When the chi-square tests were statistically significant, the researcher then had some indication of the association between HIPs and CLOs among community college students based on the row percentages. Row percentages without a small p-value were not considered. The researcher then looked for themes, such as an input (HIP) variable associating with several outcome (CLO) variables in the same way for community college students. This study analyzed a 30% random sample of the total 2019 three-year CCSSE cohort data set and included 103,537 responses from 588 colleges in 46 states (CCCSE, 2019).

Ethical Considerations

The following ethical recommendations were followed: The researcher submitted to the Institutional Review Board for approval (Creswell & Creswell, 2018); data and materials (e.g., raw data and protocols) were stored using appropriate security measures; both statistically significant and practical results are being shared; the researcher is considering website publication for public distribution (Creswell & Creswell, 2018); all findings are based in data (Alber, 2011); and comparison studies are fully cited (Alber, 2011).

Results

Despite the historical precedent of using community college students as a proxy for underrepresented students, most students in this sample were of the traditional 18-24 student age (72%), spoke English as their first language (80.8%), were not first-generation students (62.7%), were enrolled full-time (71%), did not take developmental coursework (65%), and were credential seeking (97.5). The majority (52.2%) had no hours dedicated to caring for a dependent(s) and 71.9% spent less than five hours per week commuting (see *Appendix A: Demographics*).

For each of the 21 pairwise chi-square tests, a Bonferroni-corrected significance level of $\alpha = 0.00238$ ($0.05/21 = 0.00238$) was used because conducting multiple analyses increases the chance of finding a significant result by random chance, and the Bonferroni-correction reduces the chance of declaring a false positive result (or a Type I error) by making the significance level stricter (Bonferroni Correction,

2021). It is worth noting that due to the large sample size, the statistical significance does not provide information about whether associations are practically relevant. For practical significance, "row percentages" were considered in each of the 21 contingency tables.

All twenty-one pairwise chi-square tests resulted in statistically significant associations, with all *p*-values less than 0.0001 (see *Appendices B-D* for significance tests). This means the null hypothesis was rejected, and there is a nonrandom association between the input (HIPs) and the outcome variables. However, the statistically significant tests do not provide information about whether the associations are practically relevant. For practical significance, "row percentages" or proportions were considered in each of the twenty-one contingency tables. The significance of the chi-square tests indicates that a relationship exists between the two variables, and the row percentages provided an indication of what may be happening in that relationship.

The researcher found that the results of this study generally fall into three categories: promising results, mixed results, and results indicating no practical consequence. First, participation in internships, learning communities, in-class group projects, and service-learning all resulted in statistically significant associations, with *p*-values less than 0.0001, with all three indicators of positive CLOs. Furthermore, these four HIPs seem to have a sizable enough impact to have practical implications (see *Appendices E-G* for contingency tables).

To take a closer look at the promising results, completing an internship is associated with an 11.5% higher percentage of students responding that they "often" or "very often" discuss ideas with others, and participating in an organized learning community is associated with a 7.5% higher percentage responding with "often" or "very often" "discussing ideas with others." Those who completed an internship or were part of a learning community had a higher likelihood of responding that they "often" or "very often" "discussed ideas from the readings or classes with others outside of class," whereas those who did not complete either of those HIPs had a higher likelihood of responding that they "never" or "sometimes" engaged in such discussions. Completing an internship is associated with a 10% higher percentage of students responding that they "often" or "very often" have a "serious conversation with students who differ from you," and participating in a learning community is associated with an 8.8% higher percentage responding with "often" or "very often." Additionally, those who did not complete an internship or participate in a learning community had a higher likelihood of responding that they "never" or "sometimes" had serious conversations with students who differ from them. Completing an internship is associated with a 13.8% higher percentage of students responding that they work effectively with others "quite a bit" or "very much," and participating in a learning community is associated with a 14.4% higher percentage responding with "quite a bit" or "very much" to "working effectively with others."

Continuing with promising results, in-class group projects and service-learning participation was measured using a Likert Scale ("never" to "very often"). In-class group projects and service-learning both appear to indicate that a greater frequency of participation is associated with a greater frequency of "discussing ideas with others" and "working effectively with others." As student responses regarding "discussed ideas" increase in frequency from "never" to "very often," the likelihood of a more positive response to the frequency of in-class group projects and service-learning participation increases. As student responses regarding "had serious conversations with students who differ from you" increase in frequency from "never" to "very often," the likelihood of a more positive response to the frequency of service-learning participation increases. For in-class group projects and "had serious conversations with students who differ from you," the trend is slightly more limited. It only appears that the less often respondents had serious conversations with students who differ from them, the more likely they are to be in the "never" rating for engaging in in-class group projects.

Third, participation in a first-year experience resulted in statistically significant associations, with *p*-values less than 0.0001, with three indicators of positive CLOs. At least two of these differences may be large enough to have practical implications. First-year experience participation is associated with an 8.4% higher percentage of students responding with "quite a bit" or "very much" to "working effectively with others." Additionally, those who did engage in a first-year experience had a higher likelihood of responding "quite a bit" or "very much" to "working effectively with others." First-year experience is also associated with a 6.1% slightly higher percentage responding with "often" or "very often" to having a "serious conversation with students who differ from you." Moreover, those who did not partake in a first-year experience had a higher likelihood of responding that they "never" or "sometimes" had those types of conversations. However, there is no

practically meaningful association between first-year experience and "discussing ideas with others."

Fourth, participation in a first-term student success course resulted in statistically significant associations, with *p*-values less than 0.0001 and positive associations with all three indicators of positive CLOs. At least one of these differences may be large enough to have practical implications. First-term student success course participation is associated with a 9% higher percentage of students responding with "quite a bit" or "very much" to "working effectively with others." Furthermore, those who completed a student success course had a higher likelihood of responding that they work effectively with others "quite a bit" or "very much." However, there is no practically meaningful association between first-term student success course and either "discussing ideas with others" or having a "serious conversation with students who differ from you."

Fifth, while participation in orientation resulted in statistically significant associations—with *p*-values less than 0.0001 and positive associations with all three indicators of CLOs—there is no practically meaningful association between experience with orientation and "discussing ideas with others," having a "serious conversation with students who differ from you," or "working effectively with others." Using CCSSE data, this study did not find any practical association between orientation and CLOs, and it uncovered a positive, practical association with only one of the three CLOs ("working effectively with others") and student success courses. Orientation and student success courses were included in this study as types of First-Year Experience (FYE). In other words, what one institution calls FYE, another may call a student success course or orientation (CCCSE, 2013). However, this study discovered mixed results on FYE and CLOs. Even traditional FYEs had positive, practical associations with only two of the three CLOs ("serious conversation with students who differ from you" and "working effectively with others"). Neither Howe and Fosnacht (2017) nor Weiss and Fosnacht (2018) studied FYE; therefore, this study contributes new results in this area.

In summary, since all pairwise chi-square tests resulted in statistically significant associations, with all *p*-values less than 0.0001, the null hypothesis was rejected in each case. Every HIP analyzed in this study was positively associated with the CLO variables for community college students. The row percentages speak to the practical considerations, and interpreting them revealed several interesting trends. First, internships, in-class group projects, service-learning, and learning communities had strong enough positive associations with listening and communication civic skills to warrant practical consideration. Second, those four HIPs, along with first-year experience, had strong enough positive associations with diversity civic skills to warrant practical consideration. Third, all of those HIPs, along with student success courses, had strong enough positive associations with consensus-building civic skills to warrant practical consideration. Therefore, the most notable finding is that four of the HIPs—internships, in-class group projects, service-learning projects, and learning communities—were consistently positively associated with each of the CLO variables relating to communication, diversity and consensus building.

Discussion

The most notable finding of this research is that four HIPs—internships, in-class group projects, service-learning, and learning communities—are consistently positively associated with each of the CLOs in statistically significant and possibly practically meaningful ways for community college students. In the wake of 2020 and facing challenges to our democracy, experiential learning and teaching has an opportunity to play a vital role in equipping students for responsible citizenship. Knowing that four HIPs are effective in developing civic skills can help all teachers and learners use HIPs, which incorporate real-world, hands-on practices, and the skills HIPs develop in communication, diversity, and consensus building to tackle social issues, consider solutions, and promote the public good, especially for students that stand to benefit the most and when it is needed now more than ever.

The findings of this study are consistent with Kuh's (2008) overall research on HIPs. Kuh's (2008) findings assert that all HIPs are associated with improved academic outcomes such as student learning, retention, and graduation (Brownell & Swaner, 2009; Kuh, O'Donnell, & Reed, 2013; Finley & McNair, 2013; Kuh & Kinzie, 2018; Finley, 2019; Kinzie et al., 2020). This study found that all of the HIPs studied were associated with civic outcomes, as well. The HIPs were associated with CLOs at a statistically significant level, with all *p*-values less than .0001. In terms of practical importance, however, only four of the seven studied HIPs (internships, learning communities, in-class group projects, and service-learning) were identified as promising practices for a meaningful impact on positive CLOs. In other words, as an educator, is it worth making changes to your practice for a 1-2% difference? Possibly. But is it worth is it worth it for a 10%

difference? Most likely. That is what is meant by practical importance—which associations have enough of an impact that they would affect practice. FYE and its related experiences (student success courses and orientation) had the weakest association with CLOs.

Additionally, Howe and Fosnacht (2017) and Weiss and Fosnacht (2018) analyzed the NSSE data and found that study away, learning communities, undergraduate research, senior projects, and service-learning were positively associated with CLOs. These findings are consistent with the results of this research, which found that internships, learning communities, in-class group projects, and service-learning are consistently, positively associated with CLOs. This study's results are consistent with Howe and Fosnacht's (2017) and Weiss and Fosnacht's (2018) findings on the association between CLOs and both learning communities and service-learning. Furthermore, neither Howe and Fosnacht (2017) nor Weiss and Fosnacht (2018) studied internship and in-class group projects; therefore, the present study contributes new findings in this area.

Limitations

Limitations include the following: (a) The results are only generalizable to community college students; (b) responses are self-reported (meaning students have to know what the HIP is called and remember taking it); (c) variation exists in the fidelity of the implementation of HIPs; (d) HIPs are voluntary, and students may therefore self-select into HIPs opportunities; and (e) there is potentially a layering effect resulting in a both/and not an either/or effect. For example, perhaps a student participated in two HIPs, in which case it is not feasible to isolate the program effect of either HIP. The implication is that the inability to isolate the impact of individual and compounding HIPs may be a limitation of this study.

Recommendations

As mission-driven institutions, civic engagement is a responsibility of community colleges, whose "stated mission, in most cases, is to strengthen the local communities and regions in which we operate" (Schnee et al., 2016, p. 12). Additionally, "community college is the college experience for almost half of all Americans" (Cahill & Fine, 2016, p. x). Therefore, the results of this study have far-reaching implications.

According to the results of this study, community colleges looking to improve students' CLOs should encourage more availability and participation in internships, learning communities, in-class group projects, and service-learning due to their consistent, positive association in producing civic skills in listening and communication, diversity, and consensus-building. Community colleges can learn more about civic engagement and its application to HIPs through their campus service-learning and civic engagement office, via existing civic engagement memberships that their campus holds, and/or by researching local and national civic engagement membership options for their campus. In addition, departments that might not normally associate themselves with civic engagement can learn more about CLOs by partnering with their service-learning and civic engagement office on their campus. Up to two HIPs can be combined at one time (Kuh, 2008), and any of the following would hence be viable options (Brownell & Swaner, 2009; Kinzie, 2012): a service-learning internship, a service-learning learning community, or a service-learning in-class group project. In any of these cases, service-learning practitioners can help to share service-learning best practices that have long been associated with civic engagement.

In terms of the significance of this study, it provides information on where community colleges might profitably invest their precious resources of time, effort, and money. Offering HIPs requires resources for training and implementation (Brownell & Swaner, 2009), and to be prime stewards of their mission, community colleges must be judicious about where and how those resources are allocated. This study offers evidence for administrators to make data-informed decisions about which HIPs to invest in when the goal is CLOs. It also helps baccalaureate institutions better understand the experiences of students who transfer from community colleges.

This research demonstrates that HIPs can be an avenue for developing civic skills, as part of civic engagement, and ultimately contributing to our country's civic revival. The intersection of HIPs and CLOs is thus not only an exciting area but also a necessary area of study within the Scholarship of Teaching and Learning. Passionate citizen researchers are needed to continue contributing to academia and for the future of our democracy. ■

References

Alber, S. M. (2011). *A toolkit for action research*. Rowman & Littlefield.

Bonferroni Correction. (2021). *Statistics solutions*. https://statisticssolutions.com/bonferroni-correction

Brownell, J. E., & Swaner, L. E. (2009). High-impact practices: Applying the learning outcomes literature to the development of successful campus programs. *Peer Review, 11*(2), 26–30.

Cahill, C., & Fine, C. (2016). Moving forward: Rethinking the "civic" in a community college. In E. Schnee, A. Better, & M. Clark Cummings (Eds.), *Civic engagement pedagogy in the community college: Theory and practice* (pp. *vii–xiii*). Springer International.

Center for Community College Student Engagement. (2012). *A matter of degrees: Promising practices for community college student success (A first look).* The University of Texas at Austin, Community College Leadership Program.

Center for Community College Student Engagement. (2013). *A matter of degrees: Engaging practices, engaging students (High impact practices for community college student engagement).* Community College Leadership Program.

Center for Community College Student Engagement. (2019). *Community College Survey of Student Engagement* [Data file]. Retrieved from The University of Texas at Austin.

Community College Survey of Student Engagement. (2021). *About CCSSE*. https://www.ccsse.org/aboutccsse/aboutccsse.cfm

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.

Finley, A. (2019). *A comprehensive approach to assessment of high-impact practices.* National Institute for Learning Outcomes Assessment (NILOA).

Finley, A., & McNair, T. (2013). *Assessing underserved students' engagement in high-impact practices.* Association of American Colleges and Universities.

Howe, E. C., & Fosnacht, K. (2017). Promoting democratic engagement during college: looking beyond service-learning. *Journal of College and Character*, *18*(3), 155–170. https://doi.org/10.1080/2194587X.2017.1338581

Kinzie, J. (2012). High-impact practices: Promoting participation for all students. *Diversity and Democracy, 15*(3).

Kinzie, J., McCormick, A. C., Gonyea, R. M., Dugan, B., & Silberstein, S. (2020). *Assessing quality and equity in high-impact practices: Comprehensive report.* https://scholarworks.iu.edu/dspace/handle/2022/25712

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Association of American Colleges and Universities.

Kuh, G. D. & Kinzie, J. (2018). What really makes a 'high impact' practice high impact? *Inside Higher Ed*. https://www.insidehighered.com/views/2018/05/01/kuh-and-kinzie-respond-essay-questioning-high-impact-practices-opinion

Kuh, G. D., O'Donnell, K., & Reed, S. (2013). *Ensuring quality & taking high-impact practices to scale*. Association of American Colleges and Universities.

McNair, T. B., Bensimon, E. M., & Malcom-Piqueux, L. (2019). *From equity talk to equity walk*. Wiley.

Murphy, B. (2014). Civic learning in community college. In J. N. Reich (Ed.), *Civic engagement, civic development, and higher education* (pp. 19–24).

National Task Force on Civic Learning and Democratic Engagement. (2012). *A crucible moment: College learning and democracy's future, a national call to action*. Association of American Colleges and Universities.

Steinberg, K. S., Hatcher, J. A., & Bringle, R. G. (2011). Civic-minded graduate: A north star. *Michigan Journal of Community Service Learning*, *18*(1), 19–33. https://hdl.handle.net/1805/4592

Schnee, E., Better, A., & Clark Cummings, M. (Eds.). (2016). *Civic engagement pedagogy in the community college: Theory and practice*. Springer International.

Schneider, C. G. (2013). A new era for diversity & democracy at AAC&U. *Diversity and Democracy, 16*(1).

Weiss, H. A., & Fosnacht, K. (2018). Looking across high-impact practices: First-year student democratic awareness and democratic participation. *Journal of the First-Year Experience & Students in Transition*, *30*(2), 45–64.

Appendix A: Demographics

VARIABLE/LEVELS	COUNT (%)
Enrollment	
Part-Time	30,043 (29.0%)
Full-Time	73,494 (71.0%)
Work Hours	
0 hours	25,138 (24.9%)
1–5 hours	7,493 (7.4%)
6–10 hours	8,864 (8.8%)
11–20 hours	16,023 (15.8%)
21–30 hours	19,275 (19.1%)
30+ hours	24,344 (24.1%)
Cared for a Dependent	
No hours	50,735 (50.2%)
1–5 hours	17,082 (16.9%)
6–10 hours	8,427 (8.3%)
11–20 hours	5,811 (5.8%)
21–30 hours	3,570 (3.5%)
30+ hours	15,430 (15.3%)
Commute Time	
No hours	8,151 (8.0%)
1–5 hours	64,768 (63.9%)
6–10 hours	17,495 (17.3%)
11–20 hours	6,359 (6.3%)
21–30 hours	1,895 (1.9%)
30+ hours	2,720 (2.7%)
Gender	
1 = Male	43,328 (43%)
2 = Female	55,374 (54.9%)
3 = Other	637 (.6%)
95 = Prefer not to respond	1,443 (1.4%)

VARIABLE/LEVELS	COUNT (%)
English is your first language	
0 = No	19,254 (19.2%)
1 = Yes	81,213 (80.8%)
Credit hours complete	
1 = 0 to 29 credits	62,279 (62.55%)
2 = 30+ credits	37,292 (37.45%)
Traditional age student	
0 = Nontraditional	28,235 (28.0%)
1 = Traditional	72,590 (72.0%)
Developmental coursework	
0 = Nondevelopmental	65,415 (65.0%)
1 = Developmental	35,238 (35.0%)
First-generation student	
0 = No	64,942 (62.7%)
1 = Yes	38,595 (37.3%)
Credential seeking	
0 = No	2,513 (2.5%)
1 = Yes	97,826 (97.5%)
Race/Ethnicity	
1 = American Indian or Alaska Native	1,393 (1.4%)
2 = Asian	5,271 (5.2%)
3 = Black or African American	10,676 (10.6%)
4 = Hispanic or Latino	17,344 (17.2%)
5 = Native Hawaiian	97 (.1%)
6 = Pacific Islander	309 (.3%)
7 = White	51,770 (51.5%)
8 = Other	1,552 (1.5%)
9 = 2 or more	8,877 (8.8%)
10 = I prefer not to respond	3,337 (3.3%)

Appendix B: Communication & Listening Significance Tests

OUTCOME	INPUT	CHI-SQUARE	P-VALUE
Discussed ideas from your readings or classes with others outside of class	Internship	1111.76	<0.0001
	Group project	7553.24	<0.0001
	Service learning	3997.70	<0.0001
	Orientation	232.70	<0.0001
	First year experience	92.70	<0.0001
	Learning community	267.64	<0.0001
	Student success course	149.21	<0.0001

Appendix C: Diversity Significance Tests

OUTCOME	INPUT	CHI-SQUARE	P-VALUE
Had serious conversations with students who differ from you	Internship	1287.46	<0.0001
	Group project	7984.36	<0.0001
	Service learning	5927.77	<0.0001
	Orientation	141.85	<0.0001
	First year experience	332.83	<0.0001
	Learning community	488.43	<0.0001
	Student success course	157.38	<0.0001

Appendix D: Consensus-building Significance Tests

OUTCOME	INPUT	CHI-SQUARE	P-VALUE
Working effectively with others	Internship	2074.20	<0.0001
	Group project	11478.72	<0.0001
	Service learning	3243.16	<0.0001
	Orientation	1702.47	<0.0001
	First year experience	660.95	<0.0001
	Learning community	1227.38	<0.0001
	Student success course	1051.31	<0.0001

Appendix E: Communication & Listening Contingency Table

			LEVELS OF "DISCUSSED IDEAS FROM YOUR READINGS OR CLASSES WITH OTHERS OUTSIDE OF CLASS"			
INPUT	**LEVELS**	**SAMPLE SIZE**	**1**	**2**	**3**	**4**
Internship	0 = No	81,363	14.7%	37.7%	28.0%	19.7%
	1 = Yes	19,470	8.0%	32.8%	32.7%	26.5%
Group project	1 = Never	9,341	27.1%	35%	21.5%	16.4%
	2 = Sometimes	36,342	15.6%	43.6%	26.1%	14.8%
	3 = Often	35,677	10.6%	36.7%	34%	18.7%
	4 = Very Often	19,639	8.4%	25.1%	27.9%	38.6%
Service learning	1 = Never	72,088	16%	37.8%	27.0%	19.2%
	2 = Sometimes	19,342	7.7%	39.4%	31.9%	21%
	3 = Often	6,694	6.3%	28.5%	41.5%	23.7%
	4 = Very Often	3,581	6.3%	17.6%	24.8%	51.3%
Orientation	0 = Unable	14,970	14.5%	37.4%	27.9%	20.1%
	1 = Not Aware	14,649	16.3%	36.85%	27.1%	19.8%
	2 = Enrolled	7,423	13.1%	37.15%	28.9%	20.8%
	3 = Attended	47,428	12.4%	37%	29.45%	21.1%
	4 = Took Part	15,411	12.5%	35.1%	29.55%	22.8%
First year experience	0 = No	80,120	13.8%	37.05%	28.5%	20.7%
	1 = Yes	20,017	11.8%	35.7%	30.2%	22.4%
Learning community	0 = No	89,252	13.8%	37.2%	28.5%	20.6%
	1 = Yes	10,689	9.7%	33.7%	31.8%	24.8%
Student success course	0 = No	68,392	14.0%	37.2%	28.5%	20.2%
	1 = Yes	31,629	11.9%	35.9%	29.5%	22.7%

Appendix F: Diversity Contingency Table

			LEVELS OF "HAD SERIOUS CONVERSATIONS WITH STUDENTS WHO DIFFER FROM YOU"			
INPUT	**LEVELS**	**SAMPLE SIZE**	**1**	**2**	**3**	**4**
Internship	0 = No	81,427	32.9%	39.4%	18.3%	9.3%
	1 = Yes	19,483	21.3%	41.1%	23.2%	14.4%
Group project	1 = Never	9,342	51.45%	30.85%	11.2%	6.5%
	2 = Sometimes	36,383	35.0%	43.9%	15.35%	5.7%
	3 = Often	35,740	25.8%	41.75%	23.6%	8.9%
	4 = Very Often	19,637	22.0%	32.7%	22.3%	23.0%
Service learning	1 = Never	72,157	35.2%	39.6%	16.85%	8.4%
	2 = Sometimes	19,342	21.6%	44.7%	22.7%	11.0%
	3 = Often	6,703	17.2%	34.2%	33.6%	15.0%
	4 = Very Often	3,582	15.7%	25.1%	22.6%	36.5%
Orientation	0 = Unable	14,979	31.55%	40.3%	18.3%	9.8%
	1 = Not Aware	14,671	34.2%	38.1%	18.3%	9.4%
	2 = Enrolled	7,424	30.1%	39.5%	20.1%	10.3%
	3 = Attended	47,458	29.65%	40.3%	19.6%	10.5%
	4 = Took Part	15,439	30.17%	39.3%	19.5%	11.0%
First year experience	0 = No	80,199	31.6%	40.1%	18.6%	9.7%
	1 = Yes	20,018	27.1%	38.5%	21.7%	12.7%
Learning community	0 = No	89,334	31.6%	39.9%	18.8%	9.8%
	1 = Yes	10,692	23.7%	38.9%	22.9%	14.5%
Student success course	0 = No	68,434	31.65%	39.9%	18.7%	9.7%
	1 = Yes	31,657	28.75%	39.4%	20.3%	11.5%

Appendix G: Consensus-building Contingency Table

			LEVELS OF "WORKING EFFECTIVELY WITH OTHERS"			
INPUT	**LEVELS**	**SAMPLE SIZE**	**1**	**2**	**3**	**4**
Internship	0 = No	81,278	9.5%	28.2%	36.3%	26.0%
	1 = Yes	19,441	4.7%	19.2%	35.5%	40.6%
Group project	1 = Never	9,196	22.8%	32.9%	26.3%	18.0%
	2 = Sometimes	35,987	10.6%	34.9%	35.4%	19.2%
	3 = Often	35,353	5.3%	23.5%	42.2%	29.0%
	4 = Very Often	19,470	4.2%	13.3%	31.0%	51.5%
Service learning	1 = Never	71,371	10.2%	28.9%	35.5%	25.5%
	2 = Sometimes	19,151	5.0%	22.9%	39.5%	32.7%
	3 = Often	6,613	4.2%	18.3%	39.0%	38.5%
	4 = Very Often	3,538	4.2%	12.5%	25.3%	58.0%
Orientation	0 = Unable	14,994	9.7%	27.9%	36.0%	26.4%
	1 = Not Aware	14,662	14.4%	32.2%	32.5%	20.9%
	2 = Enrolled	7,437	7.3%	26.9%	36.7%	29.0%
	3 = Attended	47,500	6.6%	24.3%	37.6%	31.5%
	4 = Took Part	15,433	8.5%	25.8%	35.15%	30.55%
First year experience	0 = No	80,198	9.2%	27.4%	35.9%	27.4%
	1 = Yes	20,064	5.9%	22.5%	36.9%	34.8%
Learning community	0 = No	89,373	9.1%	27.5%	36.0%	27.4%
	1 = Yes	10,705	4.0%	18.0%	36.7%	41.1%
Student success course	0 = No	68,438	9.7%	28.1%	35.8%	26.4%
	1 = Yes	31,713	6.0%	22.9%	36.9%	34.3%