

NSSE Part 2: High Impact Practices Report

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HIED 840: Evaluating Academic Programs

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April 18, 2021

Background

Volkwein University (VU) is a large master's university who has participated in the National Survey of Student Engagement (NSSE) since 2001. Traditionally, the resulting NSSE data is “used to assess student experience, satisfaction, and institutional environment” through identifying “strengths and weaknesses in student engagement and improve student support” (Penn State University [PSU], n.d.a, para. 3). This report will analyze statistically significant findings resulting from the NSSE first-year student high impact practices (HIPs) data. First, HIPs will be introduced, then a self-comparison will be conducted between VU's 2015 NSSE data and its 2018 NSSE data. Next, a peer-comparison between VU's 2018 NSSE data and its Carnegie Class's 2018 NSSE data will be conducted, and finally, recommendations for improving VU's first-year student engagement in high impact practices will be made.

High Impact Practices

What are High Impact Practices?

High Impact Practices are undergraduate opportunities which have “positive associations with student learning and retention” (National Survey of Student Engagement [NSSE], 2018b, p. 2). The following figure from NSSE (2018b) distinguishes the six HIPs and the undergraduate opportunities they represent (p. 2).

<i>High-Impact Practices in NSSE</i>	
Service-Learning	Courses that included a community-based project
Learning Community	Formal program where groups of students take two or more classes together
Research with Faculty	Work with a faculty member on a research project
Internship or Field Experience	Internship, co-op, field experience, student teaching, or clinical placement
Study Abroad	
Culminating Senior Experience	Capstone course, senior project or thesis, comprehensive exam, portfolio, etc.

HIPs can take place at any point in an undergraduate student's education, and it is unreasonable to assume students are capable of participation in one or more HIPs in their first year. However, according to NSSE's director, Dr. George Kuh, participation in HIPs is often life-changing and institutions should encourage student participation in at least two of these practice during their undergraduate education, “one during the first year and one in the context of their major” (NSSE, 2018b, p. 2). Furthermore, NSSE (2018b) reports that each of the HIPs listed above:

Demand considerable time and effort, facilitate learning outside of the classroom, require meaningful interactions with faculty and students, encourage collaboration with diverse others, and provide frequent and substantive feedback (p.2).

The NSSE survey serves as an indirect measure of practices and behaviors that lead to learning (PSU, n.d.b). In fact, research has indicated participation in that HIPs are “key to student learning and [are] especially important for minority student populations on campus” (PSU, n.d.b, p.6).

How are High Impact Practices Measured?

As it is unreasonable to require, or aspire to achieve large first-year students (FYS) to participate in many or all six HIPs measured by NSSE, FYS data is reported as being completed by the student for only three HIPs: Service-Learning, Learning Community, and Research with Faculty (NSSE, 2020). “For each HIP except service-learning, participation is reported as the percentage of students who responded ‘Done or in progress.’ For service-learning, it is the percentage of students for whom at least ‘some’ courses included a community-based project” (NSSE, 2020, p.1). The other three HIPs measured: Internship or Field Experience, Study Abroad, and Culminating Senior Experience assess FYS based on those who “plan to do the activity” rather than those who have already participated in the activity (NSSE, 2018a).

Following data collection, survey results are summarized by student status (FYS or senior) and reported. The results are then disaggregated and reported based on the following student and enrollment characteristics: sex, race/ethnicity or international status, age, first-generation, enrollment status, residence, and major (NSSE, 2018b). HIPs data is reported in percentages of students who report participation or planning to participate in each of the categories against all survey respondents.

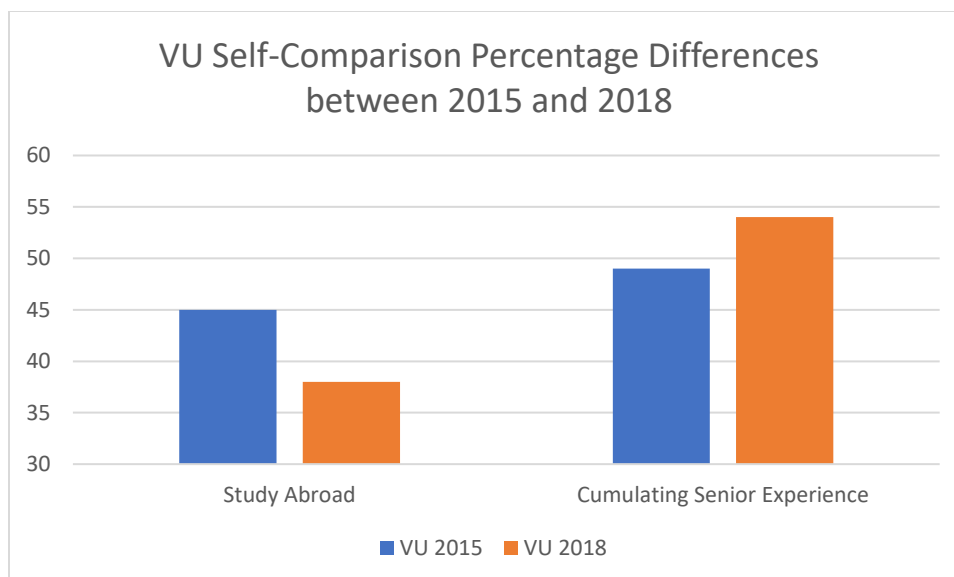
Why are High Impact Practices Important?

Along with the benefits of participating in HIPs associated with student learning and retention as well as their potential to be life-changing, assessing student participation in HIPs at their institutions has exposed areas where inequities may “exist for minoritized students, and how such inequities can be driven down” (NSSE, 2020b, para. 8). Many higher education institutions are pursuing a more inclusive and equitable campus experience, and the first step to addressing inequalities is identifying them. Furthermore, these HIPs are key indicators of the quality of education an institution is providing for its students as a whole.

Self-Comparison

Study Abroad and Cumulating Senior Experience

When conducting a self-comparison between VU’s 2015 HIPs data and it’s 2018 HIPs data, I knew I needed to pick two HIPs that showed statistical significance. Study Abroad showed statistically different values in percent of FYS who plan to participate between 2015-2018 at VU. Cumulating Senior Experience is the next closest category to displaying statistically significant changes between 2015 and 2018 at VU. The following chart graphically represents these differences in percentages of First Year Students who plan to participate in the reported HIPs.



The following table reports specific statistical details supporting this claim using a two-sample z-test for the difference in proportions.

Study Abroad	Cumulating Senior Experience																		
<p>Estimation for Difference</p> <p><u>Difference 95% CI for Difference</u> 0.0703232 (0.018406, 0.122240)</p> <p><i>CI based on normal approximation</i></p>	<p>Estimation for Difference</p> <p><u>Difference 95% CI for Difference</u> -0.0503418 (-0.103210, 0.002527)</p> <p><i>CI based on normal approximation</i></p>																		
<p>Test</p> <p>Null hypothesis $H_0: p_1 - p_2 = 0$ Alternative hypothesis $H_a: p_1 - p_2 \neq 0$</p>	<p>Test</p> <p>Null hypothesis $H_0: p_1 - p_2 = 0$ Alternative hypothesis $H_a: p_1 - p_2 \neq 0$</p>																		
<table border="1"> <thead> <tr> <th>Method</th> <th>Z-Value</th> <th>P-Value</th> </tr> </thead> <tbody> <tr> <td>Normal approximation</td> <td>2.65</td> <td>0.008</td> </tr> <tr> <td>Fisher's exact</td> <td></td> <td>0.009</td> </tr> </tbody> </table>	Method	Z-Value	P-Value	Normal approximation	2.65	0.008	Fisher's exact		0.009	<table border="1"> <thead> <tr> <th>Method</th> <th>Z-Value</th> <th>P-Value</th> </tr> </thead> <tbody> <tr> <td>Normal approximation</td> <td>-1.87</td> <td>0.062</td> </tr> <tr> <td>Fisher's exact</td> <td></td> <td>0.066</td> </tr> </tbody> </table>	Method	Z-Value	P-Value	Normal approximation	-1.87	0.062	Fisher's exact		0.066
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*Note: I generated these calculations shown in the above table through MiniTab using the NSSE 2018 High Impact Practices report data.

This confirms that the I then chose to analyze FYS who plan to Study Abroad because it was the only category that was statistically significant at the 5% level with a p-value of about 0.008. Because this difference is significant, we have reason to believe that the true proportion of all first-year students who plan to study abroad has decreased from 2015 to 2018.

Cumulating Senior Experience was the next closest category to being statistically significant at the 5% level with a p-value of 0.062. Despite this p-value being larger than 0.05,

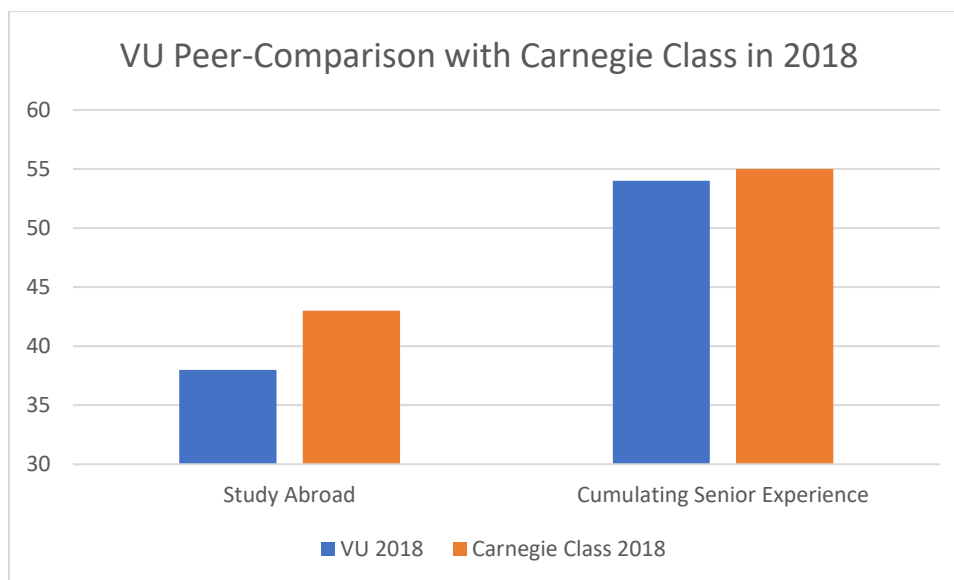
the test I ran for the difference in proportions was a 2-sided test. When considering the 1-sided p-value for the difference in proportions, we can conclude that the p-value is 0.031 and significant at the 5% level (10% significance on the 2-sided test). Based off this, we have reason to believe that the percentage of first year students who plan to participate in Cumulating Senior Experience has increased from 2015 to 2018.

It is worth noting that the remaining four categories had p-values larger than these and were not significant.

Peer-Comparison

Introduction to Carnegie Class

The Carnegie Classification of Institutions of Higher Education is a framework used within the United States to assign categories to higher education institutions. Volkwein University is a large master's university, so its peer institutions in the Carnegie Class are also large master's universities. The graph below shows the comparison of the percentage of first year students planning to participate in Study Abroad and/or Cumulating Senior Experience at VU and the Carnegie Class.



Study Abroad

In peer-comparisons with study abroad, VU in 2018 had 38% of students who had a plan to study abroad which is lower than their peer-comparison group, Carnegie Class which had a percentage of 43%. Initially I had hoped to do a similar analysis as was conducted in the self-comparison, but the specific sample size for Carnegie Class is unknown. However, it is safe to assume that the sample size for Carnegie Class is substantially larger than the sample size for VU. This would imply that the differences in proportions would likely be statistically significant.

Cumulating Senior Experience

In peer-comparisons with cumulating senior experience, VU in 2018 had 54% which is comparable to its peer group, Carnegie Class, whose percentage was 55%. These values are effectively equivalent from a practical standpoint. Even if statistical analysis revealed a significant p-value, a difference of 1% has little implication in real-world practice.

Overall Peer Comparison

The following comparison will focus on VU's First Year Student participation in the high impact practice of a learning community. This disaggregated data displays the percentage of FYS who participated in a learning community based on their NSSE response of "Done or in progress" (NSSE, 2018b, p. 5). Overall, 20% of all first-year students have joined or are currently participating in a learning community. However, there were discrepancies within groups. For example, females were more likely to join a learning community. 23% of females joined a learning community versus only 16% of males. Furthermore, people who identify with two or more races or ethnicities had a 33% chance of joining a learning community which is much higher than 20%. Furthermore, 35% of non-full time students were likely to join a learning community, and only 8% of social service professions were likely to join a learning community versus 29% of arts and humanities, or 28% of education students, or 27% of biological sciences agriculture or engineering students.

Recommended Actions to Improve Student Participation in High Impact Practices

Study Abroad

The 7% decrease in VU's first-year students planning to study abroad between 2015 to 2018 could be a result of various causes. For one, studying abroad is generally more expensive than studying at VU due to flight and international insurance costs or differences in costs of living. It is also difficult to study abroad if students plan to participate in local internships or off-campus employment. Yet another inhibiting reason could be that students are worried about timely graduation or completing their more difficult junior and senior year classes if they plan to study abroad.

VU's student affairs faculty, such as the student advising department, could begin gathering information from first and second year students to assess why they might not want to travel abroad. This would give some causation to the results NSSE has reported. If financial concerns are an issue, students could be directed to the financial aid department to learn about options. If they are worried about graduating on time or missing out on academic opportunities, talking to a faculty member could increase student involvement.

VU should take action to address the decrease in plans to study abroad in response to the decrease between 2015 and 2018 reported in the self-comparison as well as in response to the 5 percentage points lower than their peer-comparison, Carnegie Class.

Cumulating Senior Experience

Although the amount of increase in FYS planning to participate in cumulating senior experiences such as, “capstone courses, senior projects or thesis, comprehensive exams, portfolios, etc.,” has increased by 5% in VU’s self-comparison between 2015-2018, further increase could be pursued. Cumulating Senior Experiences are often summative ways for students to combine much of their major and general education knowledge into a single performance or project.

VU can encourage student participation in these activities by student affairs staff introducing them during first-year orientation activities. Faculty, specifically teaching introductory classes should incorporate previous students’ cumulative senior experience projects into their lessons as examples. Potential employers could mention e-portfolios at job fairs as a way they have discovered students who are perfect for positions at their company. Student leaders of service clubs could be encouraged to build a club e-portfolio to document community service and recruit off-campus volunteers.

The small increase in planned participation from FYS in Cumulating Senior Experience should be seen as encouraging, but it should not be seen as something the university can ignore.

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