CAPSTONE FINAL REPORT

OPEN EDUCATION LEADERSHIP PROGRAM

Developing a Needs Assessment for an Open Education Initiative

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Abstract

For my capstone project, I conducted a needs assessment of the current state of Open Educational Resources (OER) at Worcester Polytechnic Institute (WPI), in order to connect with campus OER stakeholders and identify current attitudes about, areas of opportunity for, and barriers to OER. To start this process, I identified the scope and research questions for my assessment, which focused on campus practices relating to course materials. I collected data using a variety of methods, including interviews with faculty and campus offices, student and faculty surveys on course material acquisition, and analysis of financial aid data. Based on the data I collected, I identified needs and opportunities and compiled a series of evidence-based recommendations for developing WPI's open education initiative. I also created a community resource that focused on how to plan for a needs assessment for an open education initiative. This project was successful in achieving most of the goals that I established in the planning process. Lessons learned included the importance of the needs assessment process for open education initiatives in the early stages of development, how to adapt messaging and terminology to engage faculty, and how to seek out small, intentional actions to build larger projects.

Project Overview

For my capstone project, I conducted a needs assessment of the current state of OER at WPI, in order to connect with campus OER stakeholders and identify current attitudes about, areas of opportunity for, and barriers to OER. I also created a community resource that focused on how to plan for a needs assessment for an open education initiative.

My goals for this project were to:

- Conduct outreach to OER stakeholders at WPI, in order to raise awareness of initial OER campus efforts
- Gather data on current OER attitudes and behaviors among OER stakeholders at WPI, in order to assess the current state of OER at WPI
- Provide evidence-based recommendations for an institutional open education initiative, in order to share with administration and key stakeholders
- Develop a set of best practices for analyzing and presenting institutional need for OER, in order to share a planning resource with the OER community

Phase 1: Best Practices in Needs Assessment

My work started with background research into the process of conducting a needs assessment more generally. From this research, I developed an outline of the needs assessment process, which became the basis for my community resource. I also conducted an environmental scan of previous open education-related needs assessments, to find examples and any existing best practices. I found that there were minimal existing resources relating to open education needs assessments, although there were a number of examples of institutional environmental scans and surveys on OER and course materials that I could build upon and cite in my community resource.

Phase 2: OER Needs Assessment at WPI

To conduct my needs assessment at WPI, I created an implementation plan, which was informed by my previous research. The scope of my needs assessment was broad--campus practices and needs relating to course materials--because awareness of OER is still relatively low at WPI. I developed a series of research questions to guide my data collection.

The data collection methods I used included:

- **Annual library survey of students:** I added a question to the library's annual student survey asking students to identify the methods by which they acquired their required course readings. I created cross-tabulations by method and class year to identify trends. I also identified relevant data from the 2018 student survey on library course reserve usage and free-text comments relating to textbooks.

- **Annual library survey of faculty:** I added a question to the library's annual faculty survey asking faculty to identify the methods by which they make course readings available to their students.
- **Course reserve borrowing statistics:** I analyzed statistics on the usage of our library course reserve service, including the top ten most borrowed textbooks, based on data from the 2018-19 academic year.
- **Costs of textbooks and other course materials through the WPI bookstore:** The WPI bookstore, which is operated by Barnes and Noble, could not provide a list of textbook costs, so I instead calculated the costs of the top ten most borrowed textbooks on course reserve, as well as textbook costs for required courses for WPI's most popular (mechanical engineering) and third most popular (robotics engineering) majors. (N.B.: The second most popular major, computer science, does not have many specific required courses, so it is difficult to get a baseline estimate of required textbook cost.)
- **Interviews with faculty:** I conducted semi-structured interviews with eight faculty members from the Mechanical Engineering, Humanities and Arts, Chemistry, Civil and Environmental Engineering, and Biomedical Engineering departments. During the interviews, I asked the faculty questions about the course materials they use for their courses, how they use the library's course reserve service, and their experience using "openly available, free educational materials" in their courses.
- **Focus group with students on the library's student advisory board:** I asked the seven students present at the board meeting questions about how they acquire their textbooks and how the high cost of textbooks affects them.
- **Interviews with representatives from campus offices:** I talked with other stakeholders in campus offices, including the Morgan Teaching & Learning Center, Academic Technology Center, Bookstore, Office of Disability Services, and Student Aid and Financial Literacy about their services to support course material development and affordability, as well as OER. (Some of these conversations occurred in the fall of 2018, so I used notes from these conversations in writing this report.)
- **Data review of the publicly available Common Data Set for WPI and peer institutions:** I compared tuition costs, the number of students awarded financial aid, and the average percentage of financial need met among WPI and the institutions designated as its "benchmark institutions."

Based on my data collection, I identified the following key findings:

- WPI students face financial barriers to accessing course materials, driven by the high cost of attendance and compounded by the high cost of assigned materials.
- Faculty are generally aware of the pressures of high-cost textbooks on their students and try to ease these pressures.
- While faculty are aware of the financial motivators for using OER, they are less aware of the pedagogical benefits.

- Faculty are interested in using no- or low-cost alternatives to textbooks, but barriers to adoption exist.
- Existing infrastructure to support teaching innovation can be leveraged to support the use of alternative course materials.

I also developed a series of recommendations for further developing an OER/course material affordability initiative at WPI.

- Students
 - Promote the library's course reserve service to first-year students and their instructors.
 - Conduct more outreach to students to gather stories about their experiences with course materials.
- Faculty
 - Create an OER outreach plan targeting "high-impact" courses.
 - Conduct a pilot project in OER publishing and impact storytelling with the STEM Education Center.
 - Through the upcoming Faculty Learning Community (FLC) on OER, identify additional areas for developing OER support and infrastructure.
 - Propose a grant initiative for 2020-21 in order to sustain faculty development on OER beyond the FLC.
- Campus Services
 - Partner with Academic Technology to integrate the adoption of OER into the course redesign process.

I wrote a needs assessment report detailing my findings, which I plan to share with stakeholders and administrators.

Phase 3: Community Resource

The last step of this project was to finalize my community resource on developing an open education needs assessment and make it openly available through the Open Science Framework. The components of this community resource include:

- Guide that defines a needs assessment, provides examples, and outlines the process
- List of data collection methods with examples
- Template for a needs assessment implementation plan
- Sample needs assessment implementation plan

Evaluation

One of the main goals of this project was to gather data on current OER attitudes and behaviors among stakeholders at WPI, in order to assess the current state of OER at the institution, and I believe that this project achieved this goal. When I started this project, I created an implementation plan to document my research questions and plan which methods I would use to collect the data I needed. I revisited this [plan](#) a few times over the course of the project to make changes to my data collection methods. This flexibility helped me to respond to new needs and opportunities and resulted in a more comprehensive assessment of our campus environment than if I had strictly followed my original plan. For example, after I examined past student survey data, I realized that analyzing the course reserve circulation statistics would be a useful exercise, both for understanding course material costs and targeting faculty for future outreach.

While I do consider my needs assessment to be fairly comprehensive, I also recognize that it is just the first step and that there are still areas that I would like to follow up on and learn more about. Through this project, I was able to conduct outreach to all of the stakeholder groups I had identified on my campus, which was one of my goals, but, due to a lack of time and opportunity, my interaction with students was limited to surveying and a small focus group. I did not have as many meaningful interactions with them as I did with other groups. Because of this, one of my actionable recommendations in the needs assessment report is to “conduct more outreach to students to gather stories about their experiences with course materials.”

The recommendations that I am making as a result of this report are based on the data that I gathered about the needs and opportunities at WPI. While it is still too early to determine whether they will be adopted, there is strong evidence backing up each recommendation. The recommendations also target my three main stakeholder groups: students, faculty, and campus offices.

The guide that I created for conducting an open education needs assessment provides background on needs assessments in general, then outlines the process while adapting the steps for open education assessments. To make the resource flexible and applicable to a diverse range of institutions, I included multiple types of assessment scopes, provided a flexible template, and created a list of possible data collection methods with a range of examples from the OER community. When I started this project, I envisioned including an annotated bibliography of OER needs assessment examples. As I was putting together my guide, I decided that it would be more useful to incorporate these examples into the guide itself instead of creating a separate standalone list.

Lessons Learned

One of the major lessons I learned was that a needs assessment is a valuable process to go through for an institution that is in the early stages of its open education initiative. While working on this project, I was at times second-guessing myself about whether I should have chosen a more action-oriented project (e.g., workshops, open education panel). Sitting at my desk analyzing survey data didn't seem like it was actively moving our open education initiative forward. However, after having written up my report and as I am preparing to share it, I am confident that this process has been worthwhile and has produced incredibly valuable data. I now have a much stronger understanding of the unique circumstances on my campus, and I have clear goals for the next year. My report and the data I have collected during this process will also be powerful tools in advocating for this initiative.

Messaging and terminology are important, particularly for engaging faculty. Since awareness of OER is still relatively low at WPI, framing my faculty interview requests as focused on their use of course materials elicited a good number of responses and kept the interviews on target. This was a technique that I learned about at Open Education 2018, while attending a session on Temple University's "Textbook Listening Tour," co-presented by one of the other fellows in this cohort, Annie Johnson. This is, in and of itself, a lesson learned: it is important to attend conferences, seek out networking opportunities, and learn from your peers in any way you can.

My last takeaway is that small, intentional actions are important. Following up with relevant resources, being willing to go on tangents and have broader conversations, expressing interest in the work of others: these are all small things that can help build relationships and have a big impact. Outside of this project, I helped to get OER selected as the theme for the teaching and learning center's annual Faculty Learning Community, and this happened entirely through small actions, which built upon each other and resulted in a larger project.

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