

UW Academic Challenge and Engagement Study (UW ACES): Environmental Studies

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INTRODUCTION

Research on learning in college shows that learning is profoundly shaped by the goals, practices, cultures, and values of the academic disciplines¹, particularly the disciplinary practices in students' majors. Therefore, if we are to understand the kinds of experiences that students find intellectually rigorous (and, thus, engaging), we need to examine challenge in the major. Understanding challenge in the major is important because at every stage of their college experience, students report that they want to be challenged, that they perform better in courses that are challenging, and that they value classes that stretch their thinking and ask them to demonstrate learning more than they value classes that ask little of them.² Although learning about where students experience challenge is important, asking students to describe challenging learning experiences in their majors requires some prior understanding of how those majors operate. The Office of Educational Assessment (OEA) designed the UW Academic Challenge and Engagement Study (UW ACES) to accommodate these needs.

METHOD

Qualitative methods are recommended when researchers are seeking to understand the complex learning experiences of students, as well as the meaning they ascribe to those experiences³; therefore, we designed the UW ACES to be primarily an interview study.⁴ Using a "citizen science" model, OEA asked departmental advisers if they would be willing to volunteer to interview seniors in their departments who came in to advising to apply for graduation. Advisers are knowledgeable about their academic programs, understand disciplinary practice in their departments, and are trusted by students in the major, so they have the best chance of gathering good information from seniors about their experiences in the major.

Sixty-six advisers from 32 undergraduate programs volunteered to participate. During the 2012-13 academic year, the volunteer advisers asked students if they would participate in brief (5-10 minute) interviews about challenge in the major. If the students agreed, advisers asked them to respond to four open-ended questions, entering students' responses directly into a Catalyst survey form that OEA researchers had designed for that purpose. The questions were as follows:

¹ Beecher & Trowler, 2001; Bransford et al., 2000; Beyer et al., 2007; Donald, 2002; Pace and Middendorf, 2004; Wineburg, 2001, 1991; Neumann et al., 2002; Shulman, 1988; Biglan, 1973.

² Beyer, et al., 2007.

³ Merriam, 2001.

⁴ One participating department asked students to respond to the open-ended questions in writing.

1. What do you consider to be the most challenging work that you had to complete in this major? And by "challenging" I mean doing the work that stretched your thinking the most. This can be anything—a project, a paper, an exam question, homework, something else you did related to the major.
2. What made the project/class/activity challenging?
3. What did you do or learn that enabled you to meet those challenges?
4. What do you think you learned by completing this project/class/activity?

In addition, advisers asked students in what course the challenging work took place and how many quarters they had until they graduated.

Researchers in OEA conducted training workshops in interviewing skills with all participating advisers, provided individual departments with survey customization if required, and monitored all resulting interviews, reporting back to advisers about the interviews they had conducted. By the end of the academic year, departmental advisers had interviewed 1,237 students. Students' responses were analyzed using a constant comparison method⁵, an inductive process designed to let themes emerge, rather than imposing assumed categories on students' comments.

STUDY LIMITATIONS

If we interviewed students post-graduation, they would be likely to identify their capstone courses or their advanced senior-level courses as the ones asking for their most challenging work. However, because we wanted to attach the interview to a time when students would normally see their academic advisers, we interviewed students when they came into the advising office to apply for graduation, which often meant that they were two or three quarters away from graduation. Senior-level courses, particularly capstone or capstone-like classes, are those which students often say are their most challenging and satisfying. Although interviewing students as they applied for graduation meant that we might not gather information about late-senior year courses, we felt that it would be interesting to departments to learn the kinds of challenges that lead to and prepare students for those more advanced experiences.

ENVIRONMENTAL STUDIES RESULTS

Environmental Studies was one of the UW ACES' 32 participating departments. Joe Kobayashi asked 42 students if they were willing to be interviewed for the study and all of them agreed. This number represents about 58% of the 73 seniors in Environmental Studies who graduated during the 2012-2013 school year.⁶

Quarters to Graduation and Where Students Experienced Challenge

Twenty-nine of the students interviewed reported having three quarters until graduation. Seven said they had two quarters remaining; four were in their final quarter; and two students indicated still having four quarters to go before graduation.

⁵ Merriam, 2001.

⁶ The number of undergraduate degree completions is based on the 2012-13 UW Profiles reports published by the UW Office of Planning and Budgeting (https://bitools.uw.edu/views/13-SummaryandTrendsDegreeAttributes_0/13-Dashboard#1)

Overall, the 42 interviewees listed 46 courses, 38 in Environmental Studies and eight outside of the major, as presenting them with significant challenges. Four interviewees listed more than one course as the source of their greatest challenge.

Students identified 18 200-level courses, four 300-level courses, and 16 400-level courses as the sites of their most challenging academic experiences. The list of courses in the major as well as the number of students who identified them (only one if not otherwise noted) were as follows:

- ENVIR 200: Environmental Studies, Communication and Information (7)
- ENVIR 221: Environmental History of the U.S.
- ENVIR 235: Introduction to Environmental Economics
- ENVIR 243: Environmental Ethics (7)
- ENVIR 250: Environmental Studies, Data Types and Collection Methods
- ENVIR 280: Natural History, Knowing Our Non-Human Neighbor
- ENVIR 300: Environmental Studies, Synthesis and Application (3)
- ENVIR 341: Energy and Environment
- ENVIR 416: Ethics and Climate Change (3)
- ENVIR 480: Sustainability Studio (3)
- ENVIR 490: Pre-Capstone Seminar (4)
- ENVIR 491: Capstone Experience (4)
- ENVIR 496: Study Abroad- Advanced Environmental Studies
- ENVIR 498: Independent Study

Students identified eight courses outside of the Environmental Studies major as the source of their greatest challenge:

- BIO 180: Introductory Biology
- CHEM 142: General Chemistry (2)
- GEOG 360: Principles of GIS Mapping
- GEOG 371: World Hunger and Agricultural Development
- Q SCI 381: Introduction to Probability and Statistics
- SMEA 485: Pacific Recreation and Tourism Issues
- URBDP 300: Introduction to Urban Planning

The spread of courses in the major suggests that students experienced challenges mainly in 200- and 400-level courses. As Table 1 shows, those students in their final quarters were most likely to identify 400-level courses as the sites of their greatest challenges in the major.

Table 1. Site of greatest challenge by quarters until graduation (n = 42⁷)

	100-level course	200-level course	300-level course	400-level course
4 quarters left (n = 2)	0%	50%	50%	0%
3 quarters left (n = 29)	7%	41%	24%	34%
2 quarters left (n = 7)	14%	57%	0%	43%
1 quarter left (n = 4)	0%	25%	0%	75%

⁷ Given that some interviewees listed more than one class, percentages may exceed 100%.

The advisor asked students the following question: “Where are you in the Environmental Studies capstone series?” Table 2 shows the course levels that students enrolled in the capstone series identified when asked to identify the courses where their most significant challenges occurred. As would be expected, those students in the midst of their capstone series (i.e., enrolled in ENVIR 491) were more likely to cite 400-level courses as the locations of their greatest challenges.

Specifically, of the four students who listed ENVIR 490 as the course in which their greatest challenge took place, two were currently taking the course, one was enrolled in 492, and one had complete the capstone series. Of the four students who listed ENVIR 491 as the course in which their greatest challenge took place, two were currently taking 491, one was enrolled in 492, and one had completed the capstone series.

Table 2. Course levels of greatest challenge by interviewees’ place in capstone series

Interviewees (n=42)	100-level course	200-level course	300-level course	400-level course
Have not taken (n = 1)	0%	0%	100%	0%
Currently enrolled in 490 (n = 26)	12%	42%	31%	23%
Currently enrolled in 491 (n = 4)	0%	25%	0%	75%
Currently enrolled in 492 (n = 6)	0%	32%	0%	68%
Completed series (n = 5)	0%	40%	0%	60%

1. Students’ Greatest Challenges

Students were asked: “What do you consider to be the most challenging work that you had to complete in this major? And by “challenging” I mean doing the work that stretched your thinking the most. This can be anything—a project, a paper, an exam question, homework, something else you did related to the major.”

One major theme and two minor themes emerged from students’ responses.

A class. Thirty-two (76%) of the 42 Environmental Studies majors cited a specific course as their greatest challenge in the major. Seven of these students mentioned ENVIR 200: Environmental Studies, Communication and Information as their most challenging experience, explaining that it was reading and writing intensive and challenged them to discuss controversial topics with their classmates as well as make real-world recommendations. As four of these seven participants explained:

- *The lengthy readings and class discussions in small groups [were most challenging]. This was very different. Talking to people and thinking about what the right answer was instead of being told was challenging, but enjoyable.*
- *The writing in the course really stretched me to focus on improving writing skills. You had to be detail-oriented and content and structure oriented. The way she gave the assignments meant that you took it seriously. She gave very constructive feedback not in a way that pushed you down. If you did write a good paragraph, she also let you know it.*
- *ENVIR 200 with Andy Meyer. He improved my writing more than any teacher I have met. I now get 4.0 in writing courses. The first grade in that course was difficult. It was challenging because he wasn't an easy grader. All the projects were challenging. The final project (in a group of three) was a 30 page group recommendation for salmon in*

Fraser River. In so many classes you think about the policy, but in this one you had to develop the policy. A big overall goal helped.

- *Finding the relationships between my classes and seeing how they are interrelated. Most challenging was in ENVIR 200 because it was very writing and reading intensive. When we looked at more scientific articles, it was the first time that I had to read and synthesize and then apply.*

Six students cited ethics coursework as their greatest challenge, particularly in their environmental ethics course (ENVIR 243). In the words of a few of those students:

- *Environmental ethics and other ethics coursework like ethics in climate change. It challenged my thought process.*
- *The environmental ethics course was most challenging. The way that they ask you to think and the way that you had to write papers.*
- *Environmental ethics was most challenging. I don't like philosophy type things that don't have a specific answer. [The class] made me think about different ways of thinking.*

Students also commonly mentioned ENVIR 480, Sustainability Studio as posing a great challenge, as well as the core science courses (e.g., CHEM 142). In their own words:

- *Sustainability Studio Class was a challenge. It's very open, but you also have to have a deliverable at the end. Coming up with your own project and how to apply it was difficult. Ten weeks was short to do that, but enjoyable and challenging.*
- *The core science classes, specifically chemistry (Chem 142). The size of the class was difficult. The online homework was challenging for the subject material.*

Three students noted that ENVIR 300: Environmental Studies, Synthesis and Application, was particularly challenging, specifically its intense focus on case studies. As one student said:

Working with case studies especially in ENVIR 300 was challenging. I hadn't done a lot of this before. All the topics were interesting, and I had to adjust to each one. Each case would focus on different areas. They would be looking for my opinion, and not necessarily the strict facts.

The capstone. Eight respondents (19%) said that the capstone project was the most challenging aspect of the Environmental Studies major⁸. In particular, students explained that the open-ended nature of the project made it particularly challenging. Some examples of this category of response:

- *Coming up with my capstone project was most challenging. Specifically, I didn't have a lot of guidance from my site supervisor at the EPA environmental justice office. He gave me a short sheet of instructions, but they weren't very specific. I had to come up with a lot of the details myself.*

⁸ Students who cited the capstone course as the most challenging aspect of the Environmental Studies major were spread across the series with two students in 490, one student in 491, two students in 492, and two students who had completed the series.

- *The whole process of the capstone project. You have to figure out what you are doing on your own and it can be frustrating to be asked to write about a project that hasn't happened yet.*
- *Trying to decide what I want to get out of the capstone experience. In other words, how to use this as a culminating piece of my major.*

Other. Two students spoke about the challenge of study abroad. As one of them noted:

Study abroad to England through an exploration seminar. The experience made me think in a very different way, in an arts and spatial way. They didn't baby you at all. You were a grown up and you went on your own. It wasn't for the major.

Finally, one participant stated the following when asked about the most challenging work in the major:

How the program handles interdisciplinary studies. It is a challenge to synthesize all of the information together. ENVIR 250 projects were interesting. Tying the background information together was challenging. The Makah whaling project was the most interesting. Researching the facets of the whaling process was interesting.

2. What Made Those Activities/Classes Challenging?

Next, students were asked to note what it was about the activity or the class they had described that made it especially challenging. About 18% of the interviewees identified more than one reason the course or project they had described was challenging. One major theme, several minor themes, and various idiosyncratic responses emerged from the data.

Weighing multiple perspectives. The most frequently given response—noted by 14 (33%) of 42 respondents—was that the most challenging aspect of the classes/activities in the major was opening their minds to multiple perspectives and having their own perspectives challenged. Of the 14 respondents, six (43%) specifically mentioned ENVIR 243 as the site for this challenging experience. The following quotations illustrate this category of response:

- *It makes you view environmental issues from different perspectives. The instructor really went to a lot of effort to make sure we understood the perspectives of different environmental philosophers. We had a couple of short assignments, and you had to write from the perspective of a specific author. We also had to write a paper, and you had to pick one of the themes of the authors, and in the paper, you had to have an objection to what the writer wrote about. (ENVIR 243)*
- *Expressing how you felt about the case studies was especially challenging. Your opinions end up developing and changing. The Makah Whaling case in particular challenged my initial opinions. You had to think about how to balance their rights with the welfare of animals. (ENVIR 300)*
- *The ENVIR 200 and 300 courses were really focused on discussion of issues and the debates surrounding those issues. Within the major you get a lot of opinions, so there are a lot of diverging ideas, which makes for interesting conversation.*

Learning a new subject. Six (14%) of the interviewees reported that the class or project was particularly challenging because, in order to be successful, it was necessary to become competent in a subject area that they had little prior expertise in (e.g., statistics, geography, engineering). For example:

- *I have had to expand my knowledge base beyond theory and social justice to include and bridge the gap between social science and natural science theory and application. I have never had chemistry up to this point. To build a 'soil profile' for this, I'm really re-approaching natural science that I am not familiar with. I'm having to do a lot of my own research to figure out where I should be. This has helped drive my desire to take more natural science at the end of my major to apply my arguments and relate to people from a scientific perspective. (ENVIR 491)*
- *I had some background with calculus and math in high school, but stats was a new concept to me. (Q SCI 381)*
- *Learning a computer application was very different from anything else I had done and also very unfamiliar. There wasn't a lot of support other than a CD in the textbook. I really enjoyed it. At the time it was really difficult, and I broke down a few times. Thinking spatially about things in this context was really different. It was a deep dive into Geography. (GEOG 360)*

Required writing. Four (10%) respondents explained that writing requirements made the class(es) and/or projects particularly challenging. For example:

- *Working on the culminating paper. We had to look into a place's environmental history and see what's going on with it. [It is like] looking at history through an environmental lens. I looked at the Duwamish for this project. (ENVIR 221)*
- *We also had to write a paper. You had to pick one of the themes of the authors, and in the paper you had to have an objection to what the writer wrote about. (ENVIR 416)*
- *The philosophy writing style was challenging. It was a brand new writing style. I had taken writing in political science, but this was something totally different. I flopped the first paper but did better after that. (ENVIR 243)*

Challenges of real-world work. Four (10%) interviewees spoke of the challenge in conducting work outside of the classroom, in a real-world context. In the words of two students:

- *My project was working with renewable energy. I was reviewing policy, reviewing economic documents, literature reviews. I set myself up with a full plate, but it was valuable. I worked at the Center for Resource Solutions in San Francisco, CA. It was a nonprofit, environmental, renewable energy based organization. I was working on the greening energy program, a certified renewables program. I tracked renewable energy purchases from generation to consumer purchase. I was dealing with customer security.*
- *It wasn't just research, but also going out and talking to people. It was more than just a classroom learning experience; there were real-world challenges.*

High level of initiative required. Three interviewees explained that the projects were challenging because they required a lot of personal initiative. Whether working individually or in a group, students had to come up with ideas on their own as opposed to being assigned what to do. In their words:

- *The self-directed nature of this. It's all self-managed. I get minimal oversight from my site supervisor. Creating the project itself, coming up with the kernel of an idea, and scoping the project was challenging.*
- *The team worked together to figure out what we wanted to do within a given topic (reduce carbon emissions/climate change impact through campus projects). The entire project from beginning to end was challenging because we created the whole project idea from scratch. Inception to delivery, it was 'our own creation' instead of just being assigned. Here was an opportunity, and you can use your class time to work on this.*
- *Our group worked with energy use in the residence halls on campus. We ran a pilot program on one floor of one dorm. It was difficult to break down all of this information about energy use into something we could use. We did well in getting people involved. We were able to do this in a way that students got excited and wanted to participate.*

Other: Two students each spoke of the following as aspects of the class or project that made it particularly challenging:

- **Class structure, with both comments referencing CHEM 142.** *Size of the class, online component. Tough subject, more intimate environment would have been better with TAs and teachers.*
- **Demanding work environment.** *It shows that I'm comfortable working in a stressful, high demand work environment. I'm able to manage my workload.*

Three students gave the following individual responses as to why the course/project was challenging:

- *Because I picked the topic, I was more invested in it.*
- *This major has been fairly easy, fairly straightforward.*
- *I felt like it was a weed out class. The level of difficulty of the tests was hard. The grading was rough.*

3. What enabled students to meet those challenges?

The majority of interviewees (76%) discussed a single, specific source of assistance that helped to meet the challenges they outlined. Overall, students' responses produced two major and two minor themes in addition to various idiosyncratic responses.

My own efforts. Twenty-six percent of the students interviewed explained that their own efforts helped them to meet the challenges that they described, and several noted that the challenge served to show them that they needed to "buck up" and do the work required. More specifically, students noted that doing all of the assigned readings, managing their time, and/or networking were instrumental to their success. For example:

- *It made me realize the challenge that was ahead of me in college. It made me understand that I really had to put in my best to do a good job.*
- *You really had to understand the concepts they were saying. Reading and re-reading their writings really helped you assess yourself, your own knowledge.*

- *The most important thing was to manage my time efficiently, to block out whole days to study. There were weekly homework assignments. When you have homework due regularly instead of big assignments, it helped me manage my schedule.*
- *Being ready and prepared by doing all the reading ahead of time. Sometimes it's intimidating to come up with a new idea. It is important to participate despite being unsure of what you're talking about.*

Group discussion/working with peers. Approximately one-quarter of the students (10 of 42) explained that working with peers—including group discussion in class, group project work, and study groups—served to help them meet the challenges in the major. In the words of five of these students

- *Course discussions and drawing upon the ideas of the class helped me meet the challenges. [I learned] from others and others' opinions in class.*
- *There was a lot of class discussion and the whole class could talk openly. The Makah whaling case in particular was fascinating. You went in with one perspective and came out with another.*
- *I talked to other students. It was super easy to connect with other students in the class.*
- *Working in a team at the site [helped me to meet the challenges]. We helped encourage each other, pushed each other, and made it enjoyable.*

Professors and TAs. Seven (17%) students noted that they met the challenges posed by taking the initiative to work with TA's and professors in office hours or more informal settings. For example:

- *Going into office hours, working with the TA and finding exactly what they were looking for.*
- *I went into office hours. There was a study guide after the midterm that was really helpful. She gave out a list of 10 questions for the final which could help you prep, but only two of them would be on the final.*
- *I was not afraid to ask questions...teachers were approachable and enthusiastic.*
- *I learned to go in and talk to the professor (ethics) to make sure I had the right understanding.*

Becoming more open-minded. Six (14%) students mentioned that opening their minds and entertaining multiple, diverse perspectives was essential in helping them to meet the challenges in the major. Four representative quotations follow:

- *Being prepared and having my own ideas. Keeping your own opinions but knowing they could change going into it.*
- *I had to break down the traditional barriers and open myself up to the possibility that there was more to the situation than meets the eye.*
- *Hearing a lot of how different people packaged different values that might have contrasted with mine. Hearing lots of different voices helped understand a balance to the situation.*

- *I entered the major pretty confident of my opinions, but I realized that there are a lot of biases related to those opinions. I learned to separate the facts from those opinions and appreciate what people were saying.*

Other. In addition to these themes, two students identified revisiting previous courses (e.g., environmental history, environmental ethics) as providing them with help in meeting the challenges that they described.

Finally, individual students noted the following as helpful:

- Working with the site supervisor
- Not procrastinating
- Using the EPA Environmental Justice website for help with capstone
- Gaining editing skills
- Understanding one's limitations. *First time I had to understand the limitations of what I could get through. There is no 'work harder, stay up longer'; you have to understand your limitations*
- Knowing what I enjoy. *I learned how much I enjoy walking around and observing. People don't do this enough. When it's your assignment, it's calming and relaxing*

4. What did students learn by completing this project/class/activity?

When asked what they felt they had learned by meeting the challenges they had described, two major themes emerged, while the remainder of responses were largely idiosyncratic.

Being open to multiple perspectives. Twenty-four percent of the students interviewed mentioned they learned that there are multiple perspectives to environmental issues and the importance of being open-minded. The following quotations illustrate this category of response:

- *Learning to listen to exceptions and be willing to contemplate them. In a degree like this, the whole point is to make the biggest difference you can. I've learned how to listen to opposing values and ways of doing things.*
- *How to talk to other people and be open minded about their opinions.*
- *I learned how to understand concepts which aren't really aligned with my worldview. That is something that can be applied to life in general. It's really helpful to be able to see where people are coming from, even if you don't agree.*
- *I'm doing this same thing in my Latin American rights class now. Looking at things in a new perspective has helped me look at other viewpoints for a variety of different topics.*

Increased knowledge base. Ten (24%) of the participants said that they gained knowledge about various topics as a result of meeting the challenges they had described. In the words of six students

- *[I learned] the history and cultures of whaling. I learned positions and opinions about this.*
- *Learned the basics (CHEM 142) and the basic foundation of it. The concepts learned paved the way for future classes.*

- *[I learned] concepts from environmental justice like intergenerational trauma and seeing how this actually is realized in the world. I have a much more solid understanding of what these communities have to deal with. Even within the tribe there is conflict, and it was challenging for me to figure out how to help.*
- *I liked the class and learned a lot about ecology and biology concepts. The tests were just difficult.*
- *I've learned a lot about the organization [for the capstone experience] and about green infrastructure.*
- *It has given me more global knowledge. I'm more invested now that I'm more aware.*

How to write more effectively. Four (10%) of the participants explained that they had become better writers as a result of the challenges they faced in the major. In the words of two students:

- *I learned how to be a better writer.*
- *I learned that there are different styles of writing for different audiences.*

Other. In addition to these themes, two or three students identified the following as things they had learned by completing this assignment/project:

- How to articulate your opinion and back up with evidence (3)
- Critical thinking skills (2)
- Learned how to work independently (2)
- How to manage time effectively (2)
- Personal growth (2)

Finally, individual students said that they learned the following in the process of meeting the challenges in the major:

- More about his future path
- How to run a program
- How to work well with others
- *That I can do something that I don't like. I hated the class, but finishing it proved I could do something I wasn't a fan of.*
- *Sometimes school can get a little bureaucratic. I learned that it can sometimes be difficult for students to continue projects outside of the normal class schedule. Students should be aware of these challenges.*
- *I definitely look more carefully at courses. The best way to get information is when the instructor posts more detailed information. Sometimes I use Rate My Professor.*

SUMMARY

A strong, recurrent theme underlying students' responses was the importance of taking a wide range of perspectives into account when thinking about environmental issues and searching for solutions to environmental problems. For example, one-third of the students noted that considering multiple perspectives was what made their challenges especially difficult and one-quarter said that they learned to be cognizant of diverse perspectives in their own thinking when meeting those challenges.

The great majority of students in the Environmental Studies major identified a specific course as the site of their most challenging work with ENVIR 200: Environmental Studies, Communication and Information and ENVIR 243: Environmental Ethics receiving the most mentions. Moreover, several students mentioned that the capstone project was an especially stimulating aspect of the Environmental Studies major.

By and large, students explained that coursework required them to critically evaluate controversial topics on the environment by presenting multiple perspectives and challenging them to reevaluate their own perspectives. For example, referencing ENVIR 300, one student explained:

Expressing how you felt about the case studies was especially challenging. Your opinions end up developing and changing. The Makah Whaling case in particular challenged my initial opinions. You had to think about how to balance their rights with the welfare of animals.

Interviewees noted that courses often included intensive reading and writing requirements and asked students to become familiar with a new body of knowledge (e.g., Duwamish tribe culture). Moreover, at times, the work required them to become competent in a subject area that they had little prior experience with (e.g., statistics, geography, engineering). One student commented on ENVIR 491, explaining the challenge:

I have had to expand my knowledge base beyond theory and social justice to include and bridge the gap between social science and natural science theory and application. I have never had chemistry up to this point. To build a 'soil profile' for this, I'm really re-approaching natural science that I am not familiar with.

When asked what helped them meet the challenges outlined above students most commonly cited their own efforts, which broadly included putting in the work required (e.g., completing readings), managing their time effectively, and persevering when things became difficult. Furthermore, nearly one-quarter of students explained that working with peers (e.g., group project work, study groups) as well as simulating class discussion served to help them meet the challenges posed by the Environmental Studies major. Regarding the latter, one student said:

Course discussions and drawing upon the ideas of the class helped me meet the challenges. [I learned] from others and others' opinions in class.

Students also reported that becoming more open-minded and being able to entertain multiple, diverse perspectives were instrumental in their success in the Environmental Studies major. Several students noted that professors and TAs helped them to meet the challenges that they faced by holding office hours, answering questions, and being "approachable and enthusiastic."

When asked what they learned by completing the project/class, students were most likely to underscore the importance of weighing perspectives before coming to conclusions. One student summed up this theme and highlighted its importance beyond the Environmental Studies major:

I learned how to understand concepts which aren't really aligned with my worldview. That is something that can be applied to life in general. It's really helpful to be able to see where people are coming from, even if you don't agree.

Students also explained that they gained knowledge about various topics (e.g., whaling, green infrastructure), learned how to write more effectively, and how to articulate their opinions more clearly.

In sum, although the number of students interviewed was fairly small, their responses are reflective of the broad goals of the Environmental Studies major which offers students a broad-based, interdisciplinary environmental education and prepares them for a wide array of fields and post-graduate studies.

In closing, students' responses to the UW ACES interview questions suggest Environmental Studies majors felt that the challenges they described were inherently rewarding. Students often explained that they particularly enjoyed a class or activity because of the challenges it posed. These responses to challenge are consistent with research on student learning, which shows that when an assignment is challenging for students and when instructors help students meet those challenges, students are engaged in their courses and, therefore, learn more than when coursework is easy.

One Student's Responses to All Four Questions

Course where greatest challenges occurred: ENVIR 200: Environmental Studies, Communication and Information

Q1. What was the most challenging work you did? *The lengthy readings and class discussions in small groups.*

This was very different. Talking to people and thinking about what the right answer was instead of being told was challenging, but enjoyable.

Q2. Why was it challenging? *Not having the answer and then being open to other perspectives. Having your ideas challenged or not being stuck to your pre-programmed ideas.*

Q3. What helped you meet that challenge? *Being prepared and having your own ideas. Keeping your own opinions but knowing they could change going into it.*

Q4. What did you learn by meeting that challenge? *Being able to articulate your point more clearly. Being able to describe your point through your perspective of other people.*

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