

UW Academic Challenge and Engagement Study (UW ACES):

Psychology

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January 2015

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.

PSYCHOLOGY DEPARTMENT RESULTS

The Psychology Department was one of the UW ACES' 32 participating departments. Carrie Perrin, Vicky Hansen, and Tracy Maschman Morrissey asked 80 students if they were willing to be interviewed for the study and all but one of them agreed. This number represents about 18% of the 452 seniors in Psychology who graduated during the 2012-2013 school year.⁶

Students were asked which degree option—BA or BS—they were completing for their undergraduate degrees. Of the 79 interviewees, 47 (59%) said they were completing BA degrees; 29 (37%) said they were completing BS degrees; and three (4%) did not indicate which option they were completing. When there were differences in the responses of BA and BS degree recipients, we note them in this report.

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)

Quarters to Graduation and Where Students Experienced Challenge

The majority of the interviewees (58%) had a full academic year (three quarters) left to complete before graduating, and two of the interviewees (3%) had four quarters to complete. About 32% had two quarters to complete before graduation, and about 8% were interviewing in the quarter in which they were graduating. Interviewees pursuing a BA were closer to graduation than students pursuing a BS degree in Psychology; about 55% of those pursuing a BA had three or four quarters to graduation compared with 69% of those pursuing a BS. Interviewees' responses, then, may be regarded as focused on the challenges leading to the senior-level challenges that students often consider their most significant. However, as the courses students listed make clear, when asked which courses in the major had presented them with the greatest challenges, many of the 79 interviewees—and especially those earning BS degrees—noted that their greatest challenges occurred in their 400-level classes. This result, along with the fact that there is no capstone experience in the major, suggests that Psychology majors' most significant challenges may be distributed across their time in the major, rather than concentrated at the end.

Overall the 79 interviewees listed 34 courses in the Psychology major as presenting them with significant challenges. A few of the interviewees listed more than one course as the site of their greatest challenges. Students identified three 200-level courses, 14 300-level courses, and 17 400-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 noted parenthetically) were as follows:

Psych 202, Biopsychology (7)	Psych 250, Racism and Minority Groups
Psych 209, Research Methods (6)	
Psych 305, Abnormal Psychology (6)	Psych 330, Animal Behavior Lab (3)
Psych 306, Developmental Psychology (2)	Psych 331, Human Performance Lab (2)
Psych 315, Understanding Statistics in Psychology (6)	Psych 332, Neurobehavioral Lab (3)
Psych 317, Introduction to Probability and Statistics in Psychological Research (3)	Psych 333, Sensory and Perception Processes (2)
Psych 318, Introduction to Probability and Statistics in Psychological Research (3)	Psych 334, Social Psychology Lab (2)
Psych 322, Intro to Drugs and Behavior (3)	Psych 345, Social Psychology (3)
	Psych 350, Junior Honors (4)
	Psych 357, Psychobiology of Women
Psych 403, Motivation (2)	Psych 450, Senior Honors
Psych 410, Child and Adolescent Behavior Disorders	Psych 456, Social and Moral Development (3)
Psych 415, Personality and Social Development	Psych 459, Evolutionary Psychology (2)
Psych 419, Behavioral Studies of Zoo Animals	Psych 460, Cognitive Neuroscience (2)
Psych 421, Neural Basis of Behavior	Psych 462, Human Memory (2)
Psych 426, Neurobiology of Learning and Memory	Psych 469, Psychology of Reasoning
Psych 435, Human Color Vision	Psych 481, Advanced Quantitative Methods (2)
Psych 448, Behaviorism seminar with Andrew Fleming	Psych 487, Advanced Psychobiology of Women
	Psych 499, Undergraduate Research (3)

In addition, two students mentioned Biology 118 as the course that presented them with significant challenges, along with courses in the major.

As noted previously, the spread of courses in the major suggests that students experienced challenges across the Psychology curriculum, but especially at the 300- and 400-levels. Furthermore, that so many 400-level courses were mentioned by a group that included many students who were just beginning their senior years indicates that students in the major do not move through the major sequentially.

There were differences between the courses mentioned by BA and BS students. Overall, the courses that were mentioned most frequently were Psych 202, 209, 305, and 315, but all four of these courses were most frequently mentioned by students earning BA degrees in the major. Five of the seven students who identified Psych 202, five of the six mentioning Psych 209, four of the six mentioning Psych 305, and all of the six mentioning Psych 315 as the sites of their most challenging experiences were earning BA degrees.

In contrast, Psych 317, 318, and honors courses were mentioned exclusively by BS students. In addition, BS students identified more 400-level courses than did BA students—even though the BA students on average were closer than BS students to graduation. As Table 1 shows, six percent of the courses BS students identified as the sites of their most challenging experiences were 200-level courses; 56% were 300-level; and 38% were 400-level courses, compared with 25%, 46%, and 29% respectively for BA students.

Table 1. Site of greatest challenge, BS and BA Psychology majors

	BS	BA
200-level course	6%	25%
300-level course	56%	46%
400-level course	38%	29%

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.*”

Two strong themes and several minor themes emerged from students’ responses to this question, and we found no differences in the responses of BA and BS students.

A course. The majority of students (54%) said that a whole course—or in a few cases, a course sequence—had presented them with their most challenging work in the major. In the words of a few of those students:

- *Psychobiology of Women 357—great teacher and really difficult material. It was so much information. It was one class that stood out to me as really difficult but that I learned so much in, specifically about my body.*
- *Psych 456, Social and Moral Development seminar class. Discussion-based classes stretch my thinking more than text, lecture, or other formats. We read original documents—Skinner, for example. It takes a lot more work to get through the materials*

than reading a text, which has regurgitated information several times over. This seminar included both discussion and papers. It had 25 people, no tests, and was all discussion, based on papers.

- *I'd say social psych lab, Psych 334—a great class. It put together all the pieces. We had to design and run a study, which was probably something that made me bring together all the knowledge I had been learning into one coherent objective/result.*
- *Psych 317 and 318. I guess the fact that you have to apply equations to real life situations, and I wasn't good at thinking abstractly. I also liked this about these courses.*
- *Psych 250 helped generate different kind of thinking for me—critical thinking skills rather than one specific answer—thinking outside the box.*
- *Psych 460, Cognitive Neuroscience. Critical thinking. You had to come up with a unique study, theoretically—based on research you'd done on a topic. You had to come up with a way to test something that hasn't been done before. I studied language and music processing—what parts of the brain were triggered.*
- *Psych 322, Intro to Drugs and Behavior, Dr. Diaz. Interesting professor and I enjoyed all the material. His style of teaching is very different. The pace of the class is very quick. His passion about the material [came through]. He tried to express his interest to us. This challenged me in that I felt a needed to step up in the class. It was also at 8:30 a.m. I felt almost obligated to work hard.*

A paper/the writing required. A second strong theme to emerge from students' responses to this question concerned writing in the major. About 30% of the interviewees said that specific writing assignments or writing assignments in general were the most challenging aspects of their experience in the major to date. Students spoke about a range of papers and topics, as the following examples illustrate:

- *Psych 209 Research Paper: Do Children with Invisible Friends have High Sociability with Peers?*
- *Psych 331 Lab Report: The Effects of Deliberation on Decision Making.*
- *The writing assignments we've had to do have pushed my thinking. [We had to] read scientific articles, think about them in depth, and then write it down. In Psych 306 we did one on whether spanking should be outlawed. We read articles for both sides and then had to decide.*
- *Thus far, writing assignments. I was used to writing English papers. The first time [I had to write a paper], I was taking Psych 209 and needed to use APA format. This quarter I'm taking a lab that I think will stretch me further. You need to come up with your own project—a group project—and run an experiment, collect data, and present that to the whole class. It's Psych 330, Animal Lab.*
- *Probably the final paper I had for Psych 435 (Human Color Vision). I had to come up with my own topic. Just thinking of that in the first place was tough. Then you had to do the research and compile that into a paper. That definitely stretched my thinking. It was complicated because the aspects of vision are hard to wrap your mind around.*

- *In my summer internship, I was coaching kids in swimming for my Psych 403 Motivation course. I had to write a research paper based on my experience. I needed to apply self-determination theory to my coaching experiences, which I learned in my motivation course. It was fun, but it really stretched my work. I had to incorporate my understanding of the readings in statistical methods and apply them to research questions.*
- *I think it would be social psychology. The demands were high, and there were many concepts to understand. I really benefited from that class, I believe. We had three papers due in the class and they were taken very seriously, and if you didn't write well you would not receive full credit. Strict grading. I always have benefited from that as well because I learned from my mistakes and this helped me improve as a writer.*

In addition to these two strong themes, a number of minor themes emerged from students' responses. These themes often overlapped with the writing theme, because they usually included written work.

Designing and conducting research. Five (6%) of the majors interviewed said that the research they were required to do in the major was the most challenging aspect of their experience. For example:

- *Psych 209 research methods. We had to design our own research [project]. We had to set up everything. It was a really great application of info from the text book, and it was fun!*
- *Psych 209, coming up with our own research proposal.*
- *It was conducting our own experiment in my animal behavior lab.*

A project. Five (6%) of the interviewees described a project as their most challenging experience in the major, as the two examples illustrate:

- *The most difficult is Psych 332. The group project and presentation on an alcohol experiment stretched my thinking because I used statistical information and none of us remembered how to do the analysis. It helped me understand stats a lot more when I read other scientific papers for other classes.*
- *I would say Dr. Diaz had us write our own test for Psych 322, Drugs and Behavior. It was fun to think of it from the other side.*

A presentation. Four (5%) students mentioned the challenge of making presentations. As two of them said:

- *Research paper and presentation in class. I had to teach the class for a half hour about a topic and then present a research paper on the topic in evolutionary psychology.*
- *Presentations in some of my classes.*

Other. Three students each mentioned the challenges in the reading assigned and in an exam they took in one of their courses. One student mentioned participating in discussion groups, and another student spoke of the challenging of getting involved in a research project early in the major. This last challenge was described in this way:

I think the most challenging thing for me was getting into research right as I started the major. That set the standard for the major. It was a really strict nine hours per week

commitment. I had to meet a certain standard of accomplishment. It was a huge lab with tons of people. I had different types of work as an experimenter. I always needed to stay on top of it—finding a way to still help out even if there was not a way to be an experimenter. Looking back, that was the most challenging because it set the standard. I applied to the major as a sophomore and joined Project 123 Go right away.

2. What Made Those Activities/Classes Challenging?

When asked what had made those activities challenging, about 44% of the 79 interviewees identified more than one challenge. Many themes with a moderate or small amount of agreement across interviewees emerged from students' responses to this question.

Understanding/using statistics and statistical methods. The most frequently given response—noted by about 18% of the respondents—was that understanding and/or using statistics was the most challenging aspect of their courses and assignments in the major. Several of these students identified work in statistics that was related to projects they had found challenging, and two of them noted challenges in statistics related to papers they had written. For many students statistical challenges were related to courses they had found especially challenging. These courses included Psychology 315, 317, and 318, the courses in Psychology that focus on statistics. However, they also included other courses in the major, such as Psychology 209, 332, 345, and 403. The following quotations illustrate this category of response:

- *I would say Psych statistics because I'm not a math person. It really stretched the way I thought. I guess understanding and matching the symbols with the meaning. You need to know what each thing stands for.*
- *The most difficult is Psych 332. The group project and presentation on the alcohol experiment stretched my thinking because I used statistical information and none of us remembered how to do the analysis. It helped me understand stats a lot more when I read other scientific papers for other classes.*
- *I am not great with statistics so this material [in Psych 209] was difficult. Also, the way I studied was challenging. For the final, I studied with others and did much better than [I did in] the first two tests. Group study helped. Just refreshing myself on basic math [was the biggest challenge in Psych 315]. I don't really like math either. I didn't really like stats either.*
- *Stats 317 and 318. This is a new kind of math. It's pretty rigorous. There's a new chapter for every lecture. It's rewarding and interesting in the end. There's a lot of work—homework, exams (5 midterms)—a lot of material, and it's a new way of thinking.*
- *I am used to T tests but now I am trying to understand different stats and apply these, because it's not something I'm used to when reading research papers. It's hard conceptually.*

Understanding and writing/speaking about unfamiliar and complex topics. About 17% of the respondents spoke about the challenge in understanding complex topics so that they could write or

speaking about them. Many of the students whose responses fell into this category mentioned finding biopsychology particularly complex. Some examples of this category of response:

- *In psychology, a lot of it was learning the general processes and stuff. In abnormal psych, it was having to understand the processes by which the brain is affected and the types of abnormalities.*
- *I took a class with Dr. Murray, Psych 460, and it was a very research-based course on brain anatomy and function. The specificity and depth of material [made it challenging]. In a lot of undergrad classes, you learn a little about everything, but this material was so specific and very multidisciplinary with medical field information—mostly anatomy—behind the equipment and techniques for using fMRI and EEG, the neuroimaging techniques we had demos of.*
- *The class that really challenged my thinking was Biopsychology. Exploring things from a biological/ physiological perspective exposes you to a different way of thinking about behavior, other than the social perspective.*
- *It was definitely being able to present information in a way that was easy to understand.*
- *I have been able to read scientific papers and then be able to explain them to others. In Neurobiology of Learning and Memory, we read a lot of papers and then we talked about them together. Then, I had to lead a discussion on a paper. After that presentation I felt like I had really achieved something and successfully conveyed really complex ideas. I was able to talk about all the processes they used to study in the paper and then to answer any questions that anyone asked.*
- *Probably the final paper I had for Psych 435 (Human Color Vision)....That definitely stretched my thinking. It was complicated because the aspects of vision are hard to wrap your mind around.*

Designing and conducting a research project. About 15% of the students said that what had made their most challenge experiences difficult was designing and conducting their own research studies or experiments. In their words:

[We wrote] a research paper based on lab experiences on the zebra fish and their startle response. In the lab, we dropped in a marble into the tank and coded fish's reaction. It was time consuming to set up the lab and difficult to do the testing. We had a lot of opportunity for human error in this lab and limited funding and at the same time, we needed to keep a high level of testing.

We also had to conduct a small experiment and this trying to control for anything and work in APA research type stuff in a short time span was difficult and overwhelming and fun. This is a great challenge.

A lab project at the Woodland Park Zoo observing two captive-born warthogs and comparing their activity levels to wild-born warthogs. I did 30 hours of observations to make suggestions for environmental enrichment. This was presented in a research paper and a poster presentation. It took a lot of time to design the experiment. The zoo keepers suggested the project, but it was up to me to design it and to do everything.

*I'd say social psych lab (Psych 334). It was a great class—putting together all the pieces. Designing and running a study was probably something that I think made me bring together all the knowledge I had been learning into one coherent objective/result. It was difficult to gather all the information about what we **do** know to design a study to find out what we **don't** know and to design a study in a way that was effective and valid—and to be something that I could do after graduation. I am still working on this on and off.*

- *It will also be difficult to come up with my own experiment. I haven't done this before either.*
- *Going through all the different research, the process of designing an experiment, and taking into account all parts of going into a study. Things don't always turn out the way you think they will go. We thought everything would work out correctly, but we found out we had a lot of problems with research design. After going over it and seeing results we found a lot of things we could have improved/changed.*

Reading, interpreting, and using scientific articles. Ten students—about 13% of the respondents—said that what made their work in the major especially challenging was reading, understanding, and using scientific articles. Sometimes, this challenge was linked to writing assignments, but frequently it was discussed as a challenge in its own right. The following examples illustrate this category of response.

- *It was the combination of having to look at scientific articles and interpret findings in our own words and then apply them to real world concepts.*
- *It is often easy to read a research article and get the main ideas and summarize it in other classes. This class made you go far into the articles to really understand them for the research methods used.*
- *I think the big thing that stretched me was reading different studies. Sometimes those studies can be convoluted because of the way psych writing is done.*
- *Psych 481, reading and analyzing research papers. It was hard because there was a lot of statistical based work and scientific jargon to wade through. It was interesting but hard.*
- *Discussion based classes stretch my thinking more than text, lecture, or other formats. [In Psych 456, Social and Moral Development], we read original documents. Reading Skinner, for example, takes a lot more work to get through than reading a text, which has regurgitated information several times over. I'm good at taking a text book and regurgitating information. So it's a whole new concept to read original works, and I needed to get skills to read original works.*

Thinking analytically and critically. Eleven percent of the respondents said that having to think critically or evaluate information was what made their most challenging experiences in the major especially difficult, as the following examples of this group illustrate:

- *I needed to do a lot of deep thinking on thought-provoking information. I needed a response to a published paper. I had to evaluate what the author of the research papers actually said.*

- *Psych 250 helped generate a different kind of thinking for me—critical thinking skills. Critical thinking in this way is not something that tends to be taught in education, I think. In the past, it's more "just read this, do multiple choice or analyze." It's not about taking different sides and thinking critically. I'm also doing this in Psych 403.*
- *I had to go through and make sure the material was comprehensive. Just the whole idea of taking your own personal doubts about the material out of it and thinking of questions that would be challenging and also to implement critical thinking and to think more broadly about a topic.*

Coming up with my own topic or hypothesis. Eight students (10%) spoke of the challenge of having to identify their own topic or argument for a paper or a project. Four of the eight were talking about papers they had been assigned to write and two were speaking of an aspect of designing and conducting their own research that was particularly challenging. In the words of two of them:

- *First of all the paper was over 30 pages. I had a difficult time trying to lay it out and finding a structure for all the information I had on the subject. I had to work independently because my professor was very busy with his own work. I also found it difficult to establish my hypothesis.*
- *Probably the final paper I had for Psych 435 (Human Color Vision) [was the most challenging work I did. I had to come up with my own topic. Just thinking of that in the first place was tough.*

Conducting a literature review/finding articles. Seven students (9%) spoke of the challenge of doing literature reviews and finding articles and information on a topic. Nearly all of these students were speaking of what made a paper they were writing most challenging. For example:

- *I had to put everything together. It was the first time I wrote a scientific paper. I had to find articles about invisible friends without autism, which was hard.*
- *In Personality and Development of the Child, we had a 10 page research paper. The whole process of finding the sources and putting it all together was challenging.*
- *I had to do an extensive literature review.*

Writing a scientific paper vs. papers for other disciplines. Seven students (9%), all of them speaking of the challenges in writing papers in the discipline, said that writing a *scientific* paper that met disciplinary standards made their challenging activity the most challenging. As three of those students noted:

- *Psych 333 was pretty challenging, pretty hard for me. Sticking to APA format and being so meticulous and making sure all wording is accurate and not saying anything you can't say—not making sweeping assumptions or saying something that isn't statistically correct.*
- *Psychological writing is tough, and you had to learn how to write like that. It is not natural for early undergrads to know how to do that. Making graphs and charts was tough. There was a lot of information to synthesize.*
- *I had to do an extensive literature review. I needed to revise this 25 page paper many times and meet specific formatting requirements. I had to use scientific thinking in the structure of the paper.*

The amount of work required. Nine percent of the student interviewees also pointed to the workload as the aspect of their work in the major that made it the most challenging work they had done. The following quotations illustrate this category of response.

- *I've never taken an essay exam before. It was very in-depth material. A ton of reading and a lot of integrating the material, including videos, all kinds of guest lecturers. It was a good experience to do that. I was terrified but I got a 4.0.*
- *It was almost like learning two subjects. I hadn't taken a lot of biology or anatomy. You had to study a lot. It was like two subjects for one class.*
- *It was a new kind of math—pretty rigorous—a new chapter every lecture. It was rewarding and interesting in the end. A lot of work, homework, exams; there were five midterms. It was a lot of material and new way of thinking.*
- *Exams were difficult and the volume of material was challenging. The course was densely packed. We learned the physical aspects in class (biology of women), then I had to sit down and read a lot, and come to quiz section to put it all together. This was super challenging but extremely helpful.*

Figuring out how to incorporate information into a structure. Six students (8%), all of them speaking of the challenge in writing papers for the major, spoke of the challenge of synthesizing information into a coherent paper of their own. As two of them said:

- *The lit review was the most work from a time perspective. The most challenging was organizing it into a structured paper because there was so much information. It was tough to organize it in a good way.*
- *First of all the paper was over 30 pages. I had a difficult time trying to lay it out and finding a structure for all the information I had on the subject...*

Difficulty with the English language. Five (6%) students said that their work was challenging because they were non-native English speakers and had difficulty with the language. As three of them put it:

- *I am not a native English speaker, which is why I struggled.*
- *The seminar style class is the most hard for me because I'm a quiet person who doesn't talk much in public. It makes me nervous to ask questions. At the moment I am taking Psych 403, Motivation. Dr. Voorhies is the best, but English isn't my first language and stating academic questions is tough. I have to organize myself a little first. I do feel this kind of class is useful.*
- *Writing papers is difficult for international students. I lost points for grammar and I can't express my opinion very, very clearly.*

Other. Four students (5%) identified each of the following challenges as the aspect of their most challenging work in the major that made it challenging:

- Raising questions about my beliefs and/or behavior.
- Presenting a new way of thinking.
- Observing or doing hands-on work
- Applying what I learned to real life

Finally, individual students identified each of the following as challenging aspects of their work in the major:

- Working independently
- Creating a database to analyze a sample
- Matching what I was doing to the scientific research
- Needing to do well to get into graduate school
- Understanding the physics of the work

Although there was no broad agreement among majors about what made activities challenging, certain ideas crossed several of the categories of responses we identified. One was the challenge of writing in the major. Many students who identified writing a paper or papers as their most significant challenges in the major noted the following areas as challenging aspects of completing the writing:

- Understanding and writing/speaking about unfamiliar and complex topics.
- Designing and conducting a research project.
- Reading, interpreting, and using scientific articles
- Thinking critically and evaluating information
- Coming up with my own topic or hypothesis
- Conducting a literature review/finding articles
- Writing a *scientific* paper
- Figuring out how to incorporate information into a structure
- Difficulty with the English language

A second idea that crossed several areas of response was using and understanding quantitative data—mentioned by students as a challenge in itself, a challenge related to being introduced to new areas of study in the major, and a challenge related to understanding and using scientific articles.

A third idea found in several categories of response was the challenge inherent in new or complex ideas and thinking, which was discussed as a challenge in itself or as challenges students experienced when writing, thinking critically, or reading.

Fourth, the idea of becoming familiar with disciplinary practices was inherent in students' comments about reading scientific articles, writing for the major, and learning about/understanding complex topics.

Finally, an idea that appeared in several of the categories of students' responses was the challenge students noted in *using* what they were learning, such as using statistics in a research project, using information learned in class to design research, and using information from scientific articles in one's own writing.

There were some differences between the responses of BS and BA degree seekers in the major, as Table 2 shows. Nearly one in four of the students seeking a BS degree identified designing and conducting a research project as the challenging aspect of their most challenging work in the major, compared with 11% of the students seeking BA degrees. About 15% of those seeking BA degrees noted that thinking critically and evaluating information was the aspect of their work in the major that made it their most

challenging, compared with only 7% of the students seeking BS degrees. Other challenges, as the table indicates, were comparable.

Table 2. Percentage of students seeking BS/BA degrees who identified specific challenges

BS	BA
24% - Designing and conducting a research project	19% - Understanding/using statistics and statistical methods
17% - Understanding/using statistics and statistical methods	17% - Understanding and writing/speaking about unfamiliar and complex topics
17% - Understanding and writing/speaking about unfamiliar and complex topics	15% - Thinking critically and evaluating information
14% - Reading, interpreting, and using scientific articles	13% - Reading, interpreting, and using scientific articles
7% - Thinking critically and evaluating information	11% - Designing and conducting a research project

3. What enabled students to meet those challenges?

Most of the interviewees (62%) identified more than one source of help for meeting the challenges they described. For example, this student speaks of help received from peers, a high school class, and her own efforts:

I have definitely worked with classmates and discussed different readings, and that's helped a lot. The class also reminded me of a Theory of Knowledge course I took from the International Baccalaureate program in high school. I looked back at those handouts on how to digest information and what is being said, thinking deeper about the implications of when an article was written and who wrote it, going beyond the face value of reading. I also have been rereading over and over.

Regarding what enabled them to meet their challenges, students' responses yielded three very strong themes, along with several minor themes.

Faculty members and TAs. Nearly half (47%) of the students who were interviewed said that they could meet the challenges they had described because of help from faculty members and TAs in the courses in which the major challenge occurred. More than a third of these students were speaking of help they received for completing written assignments, a significant challenge for students in the Psychology major, as noted previously in this report. In the words of eight of the students whose responses created this category:

- *Dr. Little would write down formulas on the board, which was helpful. It was also cool when she would have us write formulas on the board to try to help us understand or expand our thoughts. She taught us that when we are looking through articles, there are parts that she had good answers for but not the right or only answers for everything. She encouraged us to share our thoughts. Once or twice I actually wrote formulas on the board. It felt great because I was getting a better sense of things! I am a visual learner, and it also helped other students learn.*
- *In the process of writing the paper, the instructor helped me. I talked to her a lot and she helped. I was surprised that my hypothesis failed.*

- *She had due dates throughout the quarter, so we had to get sources by a certain time, draft, and then write the final paper. She kind of went through how to use PsycINFO to find sources.*
- *I used office hours, which was pretty helpful—one-on-one time and a lot of concepts. I could ask my own questions that I needed to figure out.*
- *The TA helped me with all my questions. I was emailing her quite a bit. I ended up doing really good.*
- *The way Dr. Diaz broke it up with weekly tests, and final exam [helped me meet the challenges in the class]. I had to keep up on readings and homework and prove my knowledge at the end of each week, so I felt like I was really utilizing my time properly. When it came time for finals, I felt more prepared than I usually do.*
- *Dr. Voorhies is open to all opinions. There is no right or wrong answer, so she encourages students to talk. Even if I don't ask a question in a great way, she elaborates my idea and can make it more meaningful.*
- *I talked with the instructor and got lots of feedback on my many drafts.*

My own efforts. Close to the same number of interviewees who credited faculty and TAs for their success said that they were able to meet the challenges they had described because of their own efforts. About 46% of the interviewees spoke of a wide range of efforts, including keeping up with lectures and assignments, carefully reading and rereading texts, taking group work seriously, making flash cards, taking notes, doing practice problems, seeking out and using resources outside the class, and finding ways to learn material via images. Five of these students noted that they had used articles in the discipline as models for their own research designs and writing. The following examples illustrate this category of response:

- *I had to keep myself organized and on a weekly schedule. The online course info and homework was helpful. I attended every class lecture and did my group work. I met with my TA regularly and with the instructor outside of class.*
- *I suppose giving extra time for assignments and reading lecture notes and then Google other sources to grasp the material and find simplified explanations.*
- *For stats, I used what other studies used with similar experiments. I looked at UC Berkeley and different colleges and looked at PowerPoints from those courses, which were more specific than our instructors at UW had posted. We needed more complicated methods of analyses. I also used YouTube to see how to implement stats. No one knew if we were doing the right statistical test for sure. We were trying to impress the TA who was a stats buff.*
- *I just double checked the recorded lecture online and did a lot of review, I looked at review materials every day and took notes in lecture and also listened again on line. I had this thick notebook (several inches).*
- *I read a lot of articles and used these articles to get ideas for how to lay out my paper.*
- *I did a lot of practice problems from the text book.*

- *I just looked online or used APA website to see examples—how to cite things and how to put your graphs in specific APA format.*

Working with peers. A third major theme in students’ responses to the question of what had enabled them to meet the challenges in the major was that working with their peers had helped them. About 24% of the interviewees mentioned the help received from peers in study groups, in class discussion, and in general. For example:

- *Group study with others in the class. Those were really helpful. Studying with other people is useful because you can kind of quiz yourself.*
- *For that class it was finding a solid study group and working with them. Spent a lot of time talking with them and discussing concepts we learned in class. We talked about examples we saw in day-to-day life.*
- *We did a lot of discussion in class rather than lecture. That was quite beneficial for me.*
- *Studied in a group. People offered different perspectives that I hadn't thought of on my own, and they helped explain concepts that I didn't understand. Just putting in more time was helpful.*
- *Generally when reading I had a sense of what it was about, and when I went into class for discussion then I would have my thoughts verified and I would know I was on the right track. Our discussion expanded on the ideas we had and covered more background on statistical analyses.*
- *We had groups that we worked with, and having group members helped out.*
- *Putting the material together with others in quiz section was extremely helpful.*

The course itself. About 13% of the students interviewed said that information in the course itself helped them meet the challenges that they had described, as the following examples illustrate:

- *Having someone who could explain it really well helped, and we had notes and good analogies and pictures that helped explain things. The picture for myelination was a leaky pipe.*
- *Lecture was helpful. It aligned with the lab work I was doing in the UW Center for Anxiety and Traumatic Stress. We were discussing DsM in that as well.*
- *The material was really well put together and well organized. Really relatable information. She used a lot of outside examples and stories and has lots of personal experience as a professor.*

Interestingly, one example in this category of response addressed how the student used what she was learning in the course about memory to help her learn in better ways in the course:

I have learned [from this class] that memory is a very fickle thing, and you don't know when it is playing tricks on you. I am reviewing my content immediately after class. Usually I would wait until closer to finals. The way that she teaches encourages us to act now. I need to focus on how I go about studying. I am trying to apply these techniques to other classes as well. I am reading sooner, and I study my notes every night to ensure that my memory is refreshed before I go to sleep.

What I had done/learned in other classes. Several students—about 11% of the interviewees—noted that work they had done in other classes helped them meet the challenges they described in their most challenging activities in the major. Most of the previous courses they discussed were in the major, but occasionally, they mentioned courses outside the major. For example:

- *The 209 course as a foundation for social psych lab was great. I learned how to use databases and library resources to gather knowledge. There was a smallish review there. In the lab you also hone your skills more. You know more specifically what to look for and see what has been done. The stats courses were also helpful—conceptual and practical (we use SPSS and Excel) help with the study. The research lab (Psych 499) that I have been in has given me practical and research methods knowledge too.*
- *I think the biggest thing was my experience in writing papers all the time for history and my other academic experiences.*
- *My proposal focused on human sexuality, and I got this idea from taking Psych 210 so taking other classes helped me out with the idea.*
- *I had to use what I learned from my classes (Psych 209 Research Methods, Psych 345 Social Psych, Psych 317 & 318 Statistics).*
- *Overall taking classes in college helped me learn how to properly study in small increments and keep up on the readings.*

The librarian/the library. Four of the interviewees (5%) said that librarians (three of the interviewees) or the UW library (one of the interviewees) helped them with their greatest challenges in the major. Two of the students mentioning the help given to them by UW librarians noted that their professors had brought librarians into the classroom to help them learn how to use library resources. In the words of two of those giving this category of response:

- *I worked with the librarian in the Odegaard Library to help me with my literature search.*
- *The Psychology librarian came in and gave us a tutorial about how to use PsycINFO because we needed several sources. That was really helpful because I use PsycINFO now all the time.*

Other. Three students mentioned the following as helpful in dealing with their most challenging work in the major:

- The Psychology writing center
- A change in personal growth or understanding
- Hands-on work done in quiz section or lab
- Graduate students and others in the laboratory

In addition, one student identified each of the following as helpful to their challenging work:

- Observing a family member's development
- A scaffolded/sequenced assignment
- Experiencing differing perspectives
- Failing at first

- “All my experiences”
- Learning to use software (Excel, PowerPoint)
- Using the online discussion board

Table 3 shows differences in the responses of students seeking BA and BS degrees in the major. As the table indicates, both groups credit faculty and their own efforts with providing them with significant help in meeting the challenges they described. However, a much greater percentage of students seeking BS degrees gave peers credit for helping them meet challenges than did students seeking BA degrees (31% vs.13%). In addition, BS students reported receiving more help from their previous courses in meeting their current challenges than did BA students (21% vs. 6%).

Table 3. Percentage of students seeking BS/BA degrees who identified specific helps in meeting challenges

BS	BA
45% - Faculty members and TAs	47% - Faculty members and TAs
41% - Working with peers	32% - My own efforts
41% - My own efforts	13% - Working with peers
21% - What I had done/learned in other classes	13% - The course itself
17% - The course itself	6% - What I had done/learned in other classes

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

We asked students what they felt they had learned by meeting the challenges they had described, and about 46% of the 79 interviewees mentioned more than one lesson learned. Five strong themes emerged from their responses, along with a number of minor themes.

Learned something about myself. When asked what they had learned as a result of the challenges they described, about a third (32%) of the interviewees said that they had learned something about themselves. These responses varied widely and included four BA degree students who said that they had learned that if they worked hard, they could meet any challenge; four BA degree students who said that the challenge they described had sparked their interest in the field or a future career related to the discipline; and four BA degree students who said they learned they were not interested in research and/or math. Students also noted that they had learned that they needed to find a therapist, that their perspectives on certain issues had been broadened, and that they were good at science. The following examples illustrate this category of response:

- *I learned more about myself. That class was one of the biggest influences for me finding someone (a therapist) to talk to. I saw all the prevalence rates for people struggling with mental health issues. At the end of every disorder, they described that people who seek help have a better prognosis.*
- *No matter what, if I work hard, I could make it. When presented with a challenge you need to rise up to meet it to learn about yourself.*
- *It was really rewarding because it was really challenging, and I spent a lot of time studying, getting into the nitty gritty. It doesn't necessarily come easily to use your own resources and the-focus and determination that you need to be successful. I can understand things better if I put in the effort, and then I can be successful. When I think*

about it the best professors are the ones that challenge you to the next level. My favorite professors are also the ones that are really tough.

- *I learned that I can really challenge myself and it feels rewarding to have something that you viewed as really difficult and I was able to do it and do well in it.*
- *I learned that I love psychology, and this is for sure what I want to do.*
- *Research is not for me! It is hard to write and only include necessary info and you need to be really objective. I am a good writer, but this style is more difficult.*
- *I learned a lot about my weaknesses. I'm not good with time management especially with tests. I need to move things more quickly. I don't want to do anything with math in the future.*
- *It broadened my perspectives and a lot of interpersonal interactions— things like cultural or social stereotypes and being more conscious of those.*
- *I learned a lot about myself, my study habits, about not being afraid to use the resources and seek help.*

Learned information/gained knowledge from the course or from my research in the course. About 27% of the interviewees mentioned specific information they had learned from the course's topic or from a research project assigned in the course. As might be expected, their responses included a wide range of information. The following quotations are examples of this category of response:

- *I found out that having invisible friends does not correlate with the sociability of children.*
- *I learned a lot about bipolar in children.*
- *I learned about drugs and behavior, and that I was interested in the material. The more invested I became in the course, the more I was interested.*
- *I learned a ton about evolutionary mechanisms and how to take a class with only 20 students and lots of talking back and forth, instead of a 100-person lecture hall.*
- *I learned the concepts that are important to Psychology and referred back to them in later classes.*
- *My favorite part of Psychology is neuroscience and the biological aspect. I learned a lot of specific functions of certain brain regions that correspond to memory, spatial functions, and learning. I guess I learned how different cognitive abilities correspond to anatomy.*
- *I [got] a general feel of what psychology is doing in terms of abnormal psych and the failings it has had and continues to have.*
- *Well, I learned a lot about math and stats and generally how to interpret numbers in studies and the results.*

Learned how to conduct a research study. When asked what they had learned by meeting the challenges they described, about 17% of the interviewees said that they had learned how to conduct a research study or aspects of a study. In the words of six of those students:

- *I learned more appreciation for the scope of conducting research, why and how important pilot studies are, why you might do work for years and years to hone in on one question you have. I gained appreciation for the money required and resources, all aspects,*
- *I learned how to construct a study on my own and had experience with lit reviews and coming up with my hypotheses and controlling for limitations and errors in a study, data analysis and how to apply the overall results to further research and to apply it to other group studies in our course. I was able to apply information to the anatomy part in that class as well. It was good to know.*
- *It was a first-hand exposure to scientific/technical writing. I learned to design a research study.*
- *I got a feel for field research. I learned that I liked it and I was good at it. I enjoyed the people that worked at the zoo.*
- *I have learned a lot about the research process in general and what it's like to come up with an independent study, carry it out, and write a report on it.*
- *I learned a lot about research field. It was really good to understand how this comes together.*

Learned better study habits and more about how to learn. About 17% of the interviewees also spoke of learning something about the learning process as a result of meeting challenges in the major. More than a third of these students spoke about learning to manage time and another third of them spoke of learning to speak in class and work in groups. As the following students put it:

- *I think I learned how to take a psych class, how to take notes, do readings, how much time I needed to review and such stuff. I am using these methods for my classes now. I was doing econ before and began psych courses more recently so this (method of studying and material) was all new to me.*
- *I have learned new study habits. Maybe just because I have a habit and I do it all the time doesn't mean it is effective. There is always room for improvement or change.*
- *So far I have asked a few questions. Some other English-speaking students don't talk, so I feel like I have made an improvement by talking. There are other international students who are talking, so I don't feel the pressure that my accent would influence others' understanding.*
- *Talking was participation points so I had to force myself to get out there and believe that what I had to contribute was also important.*
- *I learned time management. I really had to stay on top of material.*
- *Time management and not making excuses.*
- *I am still in it right now, but I am learning all the brain structures and also self-management. We don't have due dates every week, so I am keeping myself and my group on a timeline so everything doesn't pile up the last week.*

Learned how to write a better research paper, proposal, or paper. Fifteen percent of the students interviewed spoke of having improved their writing abilities as a result of meeting the challenges that were presented to them in the major. The following are examples of what students had to say about improving their written work in the major as a result of the challenges they had met:

- *How to write a research proposal. I have the ability to do it on my own. It built up my confidence. I learned what to do so when I am in a research graduate program, I will be more prepared.*
- *I learned how to create a research proposal. I learned that finding articles is difficult.*
- *I learned that I don't write a lot of opinion papers, and it was the first time that I gracefully and respectfully wrote a paper where I appreciated another persons' world view.*
- *I learned how to be a better writer.*
- *I learned how to improve my paper writing skills. I still use these skills now.*
- *In Psych 209, I learned about how to write technically—to choose the right words, not to overstate claims, back up ideas with evidence. The foundation of science is a way of thinking that will transfer to everything else. I have actually used science from Psych 209 for job interview questions!*
- *I learned the mechanics of writing a strong paper, much benefit with hard work.*

Learned more about critical and analytical thinking. Although analytical thinking is a skill embedded in most of the learning that students reported from meeting the challenges they described, about 11% of the interviewees spoke explicitly about learning to be better critical or analytical thinkers. The following quotations are examples of this category of response:

- *Before taking this course, I doubted that Psychology would help me in the real world. But it really helped my analytical skills. It will assist me in any career where I work with people. I'm thinking about occupational therapy and psychology will be very important to my success in this field.*
- *I learned how to critique ideas that are complicated and have a lot of different facets to them. You can subscribe to parts of people's evidence but then throw out other parts. I learned how to dissect it and look critically at the different parts.*
- *I learned not just to accept peoples' opinions or my own opinions as being correct all the time. There are always other sides. I learned to think critically about what comes out in news or in information we are given. These are not always "right and wrong" situations. There are multiple answers and ways about going about things.*
- *[I learned that] obvious concepts can be examined to see if what you think is true is actually true.*
- *I have learned to take others' opinions into consideration and be able to see things from their perspectives and incorporate them into my own thoughts, to either build on their ideas or to challenge my own thinking.*

- *Before taking the class when I read an article I would agree with the author.. But after taking this class I can think more, and notice the other side. I can evaluate or express the other side.*

How to read and understand articles in the discipline. Eight percent of the interviewees noted learning gains in their abilities to read and understand scientific articles in Psychology. As three of them noted:

- *I learned how to read articles and put things in my own words.*
- *Doing that project helped me understand reading research, how it is set up and what sections to even skip when I read an article.*
- *It helps you read research papers but also sports stats. You understand correlations.*

Other. In addition to these themes, three students said that they had learned each of the following as a result of the challenges they had met in the major:

- The connection between life and classroom learning
- To take others' perspectives into account in their own thinking
- What is challenging is rewarding.

Two students reported learning the following as a result of the challenges they had described:

- How to apply theory to experiments and examples
- How to apply statistics to research and understand statistics used in research
- How to use SPSS
- How to give a presentation

Finally, individual students noted that they had learned the following:

- There are a lot of resources out there to help you learn
- How much knowledge you need in order to be able to teach something
- "That I could get a decent grade even if I don't understand material very well"

As Table 4 shows, there were some noteworthy differences in what students earning BS and BA degrees felt they had learned by meeting the challenges they had described. The four most pronounced differences were that 1) many more students earning BS degrees felt that they had learned how to conduct a research study than did students earning BA degrees (38% vs. 6%); 2) fewer students earning BS degrees felt that they had learned something about themselves than did students earning BA degrees (31% vs. 38%); 3) fewer students earning BS degrees felt they had learned to be better writers in the discipline than did students earning BA degrees (10% vs. 15%); and 4) fewer students earning BS degrees felt that they had learned how to read and understand articles in the discipline than did students earning BA degrees (3% vs. 11%).

Table 4. Percentage of students seeking BS/BA degrees identifying specific gains in learning

BS	BA
38% - How to conduct a research study	38% - Something about myself (including all who noted that if they worked hard, they could meet challenges; all whose interest in field was sparked by the challenge; and all who discovered they did not like research)
31% - Something about myself	28% - Information from the course
24% - Information from the course	15% - How to write a better research paper, proposal, or paper
17% - Better study habits	13% - Better study habits
15% - Critical and analytical thinking	11% - How to read and understand articles
10% - How to write a better research paper, proposal, or paper	11% - Critical and analytical thinking
3% - How to read and understand articles	6% - How to conduct a research study

SUMMARY

The most significant challenges that Psychology majors noted were courses or course sequences and the writing required in the major (see examples in the box that follows this section of students speaking of writing). Students found those two aspects of their learning the most challenging because they required that students:

- Use and understand statistics and statistical methods
- Understand, write, and speak about complex and unfamiliar topics
- Design and conduct research projects
- Read, interpret, and use scientific articles
- Think analytically and critically
- Come up with their own hypotheses/topics
- Complete a literature review
- Write scientifically

Students primarily credited faculty and TAs, their own efforts, and working with peers with helping them meet the challenges they described, with far more BS degree seekers noting help from peers than students seeking BA degrees noted.

In terms of what they learned by completing the challenging work they had discussed, students said that they had learned things about themselves, gained specific knowledge and information about the field, learned how to conduct a research study, learned better study habits, improved their writing abilities, and had become more analytical and critical in their thinking.

These findings indicate strong research, writing, and quantitative reasoning focuses in the undergraduate major with challenges attached to all three areas of learning and occurring in classes at all levels in the major. Close to half of the interviewees said they had received help from faculty and TAs in meeting challenges, which suggests that Psychology faculty members are aware that the kinds of learning they are asking students to do are new to students—both in terms of subjects under study and disciplinary approaches to that study.

There were pronounced differences in the responses of Psychology majors earning BS degrees and those earning BA degrees, which may have implications for program review. Differences were as follows:

- 24% of those seeking BS degrees identified designing and conducting a research project as the challenging aspect of their most challenging work in the major, compared with 11% of the students seeking BA degrees.
- 7% of those seeking BS degrees noted that thinking analytically and critically was the aspect of their work in the major that made it their most challenging, compared with 15% of those seeking BA degrees.
- 31% of students seeking BS degrees gave peers credit for helping them meet the challenges they described, compared with 13% of BA degree seekers.
- 21% of BS students reported receiving help in meeting their current challenges from their previous courses, compared with 6% of BA degree seekers.
- 38% of the BS degree students felt that meeting the challenges they described had taught them how to conduct a research study, compared with 6% of BA degree students.
- 31% of BS degree seekers reported that meeting the challenges they had described had taught them something about themselves, compared with 38% of BA degree seekers.
- 10% of the BS degree earners felt that their challenges had taught them to be better writers in the discipline, compared with 15% of the BA degree earners.
- 3% of the BS degree seekers reported that their challenges had taught them how to read and understand articles in the discipline compared with 11% of the BA degree seekers.

These differences suggest different emphases in the BS and BA programs or in the students who select them. Regarding program emphases, the BS program may emphasize research and collaboration among peers more than the BA program does (#1, 3, and 5), and perhaps the BS program offers students a more clearly progressive path through the major (#4) than the BA program does. In contrast, the BA program may present students with more explicit instruction in writing, reading, and thinking in the discipline (# 2, 7, and 8), than does the BS program, as well as somewhat greater opportunity or content that affords such opportunity to reflect on their own growth as learners (#6). Regarding differences among student, BS students may be more prepared to read and understand articles in the discipline than were BA students, for example. We did not track demographic or academic differences among BS and BA seekers.

Perhaps the most significant difference noted between the two groups is the help BS degree students report receiving from peers in meeting the challenges they described compared with that noted by BA degree students (#3). Research on learning indicates that collaborating with peers and working in study groups aid learning; therefore, the major might want to consider whether it is possible to translate the ways BS students interact with peers into the BA program.

Finally, students' responses to the UW ACES interview questions suggest that Psychology majors felt that the challenges they described were rewarding. Indeed, many students spoke of how great the professor who challenged their thinking was and how much they enjoyed the course or the challenging activity they described. This response is 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. The words of two of the interviewees, whose quotations also appear elsewhere in this report, serve as examples of the rewards of meeting significant challenges in the major:

- *When I think about it the best professors are the ones that challenge you to the next level. My favorite professors are also the ones that are really tough.*
- *I learned that I can really challenge myself and it feels rewarding to have something that you viewed as really difficult and I was able to do it and do well in it.*

Two Students' Responses to All Four Questions

Course where greatest challenges occurred: Psychology 305

Q1. What was the most challenging work you did? *A case report for Abnormal Psychology. We had to create a fictional description of an individual with bulimia. Had to create a case history for this client including family and medical history.*

Q2. Why was it challenging? *I had to use the DSM IV for the actual criteria for diagnosis. I had to really imagine a family and life history for someone suffering from a mental health issue. What would lead to this disorder? I had to combine creative and scientific writing into one paper.*

Q3. What helped you meet that challenge? *My professor was excellent at giving information and potential background information. I used the real DSM IV criteria. My paper was peer edited, which was great.*

Q4. What did you learn by meeting that challenge? *I really enjoyed using the DSM IV. The whole class was great. It is hard to imagine an array of symptoms. It is hard to infer other people's mental health and to put all the pieces together.*

Course where greatest challenges occurred: Psychology 460

Q1. What was the most challenging work you did? *Critical thinking in Cognitive Neuroscience. You had to come up with a unique study theoretically based on various research you've done on a topic. Come up with a way to test something that hasn't been done before. I studied language and music processing—what parts of the brain were triggered.*

Q2. Why was it challenging? *It is often easy to read a research article and get the main ideas and summarize it in other classes. This class made you go far into the articles, to really understand them for the research methods used.*

Q3. What helped you meet that challenge? *The class emphasized research methods. Dr. Murray was good at guiding us through the articles.*

Q4. What did you learn by meeting that challenge? *Just how to evaluate a lot of research and condense it into one idea, how to "manipulate" information to make something of my own.*

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