

## Considering the Student Perspective: Factors that Undergraduates Perceive as Influential to their Academic Performance in Science

by Ashley Welsh

Administrators within the Faculty of Science at the University of British Columbia (UBC) were concerned with improving the success of their students and were eager to understand what factors students perceived as influential to their academic performance. This concern fostered the orchestration of a mixed method study with data being collected via a survey (roughly 500 respondents), 24 one-on-one interviews and a four-person focus group discussion. This study was intended for undergraduates within the Faculty of Science who were in their second academic year of study or higher. The survey designed for this study assisted in determining what academic, social and personal factors undergraduates perceived as most influential to impeding or enhancing their academic performance. The one-on-one interviews and the focus group discussion helped in focusing on why students perceived these factors as important. Here is the summary of the findings of this research.

Category	Factors perceived as important	Why do students perceive these factors as important?
Academic	<b>Qualities of the instructor</b> Interesting  Speak clearly  Approachability	<ul style="list-style-type: none"> <li>Qualities of an instructor can influence students engagement and interest</li> <li>Clarity and organization allowed students to follow what the instructor was saying in class</li> <li>Clickers provided feedback and indication of students' understanding</li> <li>Students regarded their interactions with and advising from professors as positive influences on their performance, career objectives and overall academic experience</li> <li>Females perceived developing relationships with faculty as important to their success</li> </ul>
	<b>Student expectations of assessment methods</b> Lack of relevant practice problems  Uncertainty in knowing what to expect	<ul style="list-style-type: none"> <li>Ongoing feedback helped with students' understanding (23 out of 28 students in the interviews/focus group expressed the need for this)</li> <li>Heavily weighted finals were not representative of students' work</li> <li>In comparison to males, females expressed feeling more stressed, anxious, frustrated, and lost when they did not know what was expected of them as students</li> </ul>
	<b>Study skills and habits</b> Importance of developing and adapting skills and habits	<ul style="list-style-type: none"> <li>Most students struggled with developing and adapting their habits in first and second year. Students rarely received guidance on how to study.</li> <li>Students expressed difficulty in tailoring their habits to different subjects</li> <li>Students' study skills and habits affected students' grades</li> <li>In comparison to males, females expressed feeling more stressed, anxious, and frustrated when they did not know how to study for a test or final exam</li> </ul>
	<b>Pedagogy &amp; classroom environment</b> In-class learning techniques # of students in class	<ul style="list-style-type: none"> <li>Females preferred being active participants in their learning</li> <li>Techniques encouraging collaboration reduced females feeling isolated in large classrooms</li> </ul>
Social	<b>The involvement of others</b> Encouragement from parents, family or guardians  Suggestions from parents, family or guardians	<ul style="list-style-type: none"> <li>Family provided emotional support for students in tough circumstances</li> <li>Students perceived an academic and social community as extremely important to influencing both their performance in science courses and their overall university experience</li> <li>Females were more prone to relying on the suggestions from or their relationships with family/faculty/peers regarding their choice of major</li> <li>Females benefited from having female faculty as role models</li> </ul>
	<b>Additional Responsibilities</b> Volunteering or work	<ul style="list-style-type: none"> <li>Students found it necessary to create balance between academic and social life</li> <li>Extracurricular activities and work can impeded students' performance</li> <li>Several students chose volunteering or work experiences to enhance their learning</li> </ul>

Category	Factors	Why do students perceive these factors as important?
	<b>Commute</b> Limiting	<ul style="list-style-type: none"> <li>Students indicated that long commutes limited their involvement on campus</li> <li>Commuter students might have more difficulty in building or belonging to a community</li> </ul> <p>*Although commuting did not emerge as one of the most important factors on the survey, from the survey demographics, over 40% of students commuted a minimum of 2 and a half hours each day. Long commutes affected how students chose their courses and limited their involvement on campus.</p>
Personal	<b>Interest and academic success</b> Interest drives them to do work  Desire to succeed academically	<ul style="list-style-type: none"> <li>Being interested in a subject influenced students class attendance, drive and even influenced some students to alter their majors</li> <li>It was important for students to succeed for various reasons (i.e. attaining appropriate grades for graduate school or medical school, to appease family)</li> </ul>

The findings from this study have implications for practice that may improve the success of students in undergraduate science programs and courses. Here are some recommendations.

### **Recommendations for administrators**

- Provide study skills workshops that reflect department-specific subjects.
- Provide students with more personalized advising.
- Implement more interactive teaching and formative assessment in undergraduate courses.
- Enhance communication between professional services (i.e. counseling, advising, medical services, learning commons, etc) and faculty.
- Examine the schedules of commuter students and provide more services during the morning or early afternoon.
- Actively counsel students on the number of course they enroll in for first year (i.e. option of taking 4 courses in the year instead of the recommended 5 courses to help students adjust to the demands of university).

### **Recommendations for faculty**

- Provide additional opportunities for students to hear about or participate in real research.
- Reflect on the possible impact that presentation techniques might have on students' ability to stay focused in lecture (i.e. when using PowerPoint slides, be sure not to move through the slides too quickly).
- Create an interesting and safe learning environment in the classroom (i.e. use of active learning techniques).
- Provide regular, frequent feedback to help students assess their progress in the course.
- Provide advice regarding study techniques that would help students prepare for their exams.
- Become an advocate for science and a role model for students. Students in this study really admired and respected their professors. As a result, you should be aware of the influence that your actions have on students academically and personally.

### **Recommendations for students**

- Develop & adapt appropriate study habits and time management skills early on in your degree.
- Seek academic and personal guidance early on in your degree.
- Engage with the academic and social community at the university.
- Create a tentative course plan for your program & adjust it accordingly over time (seek help from science advisors, professors, and senior students in choosing your courses & for additional research opportunities.)

### **For more information:**

This short summary is based on research conducted by Ashley J. Welsh for her MA degree at UBC (2010).

- To view selections from Ashley Welsh's Thesis: data analysis and conclusions, visit <http://bit.ly/AWelshSelections>.
- To view the whole Thesis, visit <http://hdl.handle.net/2429/28868>.