

Lost in transit: Exploring the first-year domestic and international student experience

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***Abstract:** Research by others has shown that student attitudes and approaches to tertiary learning have significant dependence on their expectations of university study. An aim of the pilot project detailed in this paper is a better understanding of learning issues faced by first-year domestic and international students transitioning from secondary to tertiary education. An anonymous survey of student expectations of both the university environment and their approach to learning during their first year at university was implemented. Over 160 students responded to a series of close-ended questions some of which used a 5-point Likert scale. Analysis of the results indicated that students perceived themselves to be well prepared for teaching styles and learning at university. After one semester of study the majority did not perceive a change in the majority of their learning skills. However, for three of their learning skills, the international students' responses indicated a perceived loss of ability. International students lacked the skill of using problem-solving as a learning tool. These outcomes highlight the need for more targeted orientation of students who are about to commence their tertiary courses.*

Introduction

The objective of this pilot study was to explore the student-centred learning experience, exclusively for the first-year engineering cohort in an attempt to rectify a shortfall in studies completed by others (James, Krause, & Jennings, 2010; Krause, Hartley, James, & McInnis, 2005; McInnis, James, & Hartley, 2000; McInnis, James, & McNaught, 1995). A survey was used to solicit their expectations on both the teaching and the learning styles that they have been exposed to in their first semester of their courses.

The ultimate effect of student expectation on their experience during transitioning into tertiary study is encapsulated in the statement:

“First year students’ expectations of what it will be like to study at university are important for shaping their attitudes and approaches to the first year experience in all its dimensions.”
(James, et al., 2010: 27)

The first Australian national study, involving seven institutions, which focused on the experiences of first-year undergraduate students was completed in 1994 (McInnis, et al., 1995). It was an attempt to respond “to increasing international recognition that students’ initial experiences were pivotal in establishing attitudes, outlooks and approaches to learning” (McInnis, et al., 2000: 1). Subsequently, over a fifteen year period the study was repeated at five-yearly intervals by the Centre for the Study of

Higher Education (CSHE) at the University of Melbourne. In 2004 the number of participating institutions was expanded to nine, in order “to capture the growing diversity of the higher education sector” (James, et al., 2010: 9). The collected data from each study was analysed with the aim of obtaining a snapshot of the academic and social experiences of first-year university students. The participants’ selection process was random and an attempt was made to have them “stratified by field of study from each of ... [the participating] universities” (McInnis, et al., 2000: 5).

In summary, the trending obtained from this longitudinal study indicated that first-year students (James, et al., 2010):

- are spending less time on campus;
- are spending more time online;
- are participating in more group-work for assignments and projects;
- are continuing to perceive a lack of feedback on their progress;
- are studying less and working more in paid employment;
- are involved in fewer extra-curricular activities;
- are making fewer close friendships; and
- feel that their secondary schooling was a good foundation for their university subjects.

While these results should also be reflective of engineering student perceptions, there are some issues that were not canvassed even though these are of particular concern for these cohorts, namely:

- no attempt was made to investigate their proficiency for student-centred learning, which is significantly different to what they have experienced during their secondary education (McInnis, et al., 1995).
- there are no Year 11 and/or Year 12 school subjects that directly link to discipline-specific tertiary subjects for engineering courses (Fullarton & Ainley, 2000);
- the students’ existing level of exposure to new technologies may have a direct effect on their ability to comprehend new concepts (Banky, 2011).

Details of the pilot study

Student participants, those enrolled in a second semester unit in first-year mathematics, first-year materials science and first-year electronic projects, were surveyed on their expectations and engagement with their studies. There was little or no overlap amongst students from these different courses. A quantitative methodology based on a survey questionnaire was employed to collect data. The statistical analysis of the items in the survey used *IBM® SPSS® Statistics 19.0* (IBM Corp, Sommers, NY).

Method

The data was collected using a cross-sectional anonymous survey, which aimed to provide indication on the entire student population. First-year engineering students enrolled in a common first year agreed to participate in the study. Three student cohorts were given the same survey. As shown in Figure 1, the survey comprised of eight Likert-scale items which examined perceptions both *before* commencing first-year studies at university and *after* completing one semester of those studies. The response to each item was on a scale of **SA**, **A**, **N**, **D** and **SD** (corresponding to a numerical scaling of 5 to 1, where 5 = strongly agree; 4 = agree; 3 = neutral; 2 = disagree and 1 = strongly disagree). The concept of the five response-alternatives is based on the scaling proposal by Likert (1932) which he did not intend to be a summated one. However, there is an underlying assumption of a variable, the value of which represents attitudes and opinions (Clason & Dormody, 1994). In order to acknowledge

this discrete nature, the analyses compared the proportions of the responses in each category rather than consider the means and standard deviations of the ensuing distributions.

FEIS STUDENT EXPECTATION SURVEY 02/2010

If you have completed this survey already please do not submit it again!

Please place an X in the boxes to indicate your response to the questions below.

Question 1: I have completed the following subjects before commencing at university:

Level 11 Physics Level 11 Chemistry Level 11 Mathematics (any)
 Level 12 Physics Level 12 Chemistry Level 12 Mathematics (any)

Question 2: I have completed my year 12 studies:
 less than 2 years ago between 2 and 5 years ago more than 5 years ago

Question 3: I am a domestic student I am an International student

Question 4: My expectations of university teaching styles have been met.
 Yes No

Question 5: My expectations of learning at university have been met. Yes No

Question 6: I am able to transfer my study skills to university. Yes No

Question 7: Before commencing my studies at university I was able to:

SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly Disagree

	SA	A	N	D	SD
(a) take class notes successfully					
(b) use my class notes to study					
(c) use my text book to study					
(d) gain understanding from completing problems					
(e) combine different topics to gain deeper understanding					
(f) apply the theorems presented in the classes					
(g) avoid getting lost in the subject content					
(h) use Blackboard					

Question 8: Is this your first semester at Swinburne University of Technology?
 Yes Go to Q10 No Go to Q9

Question 9: After completing my semester one studies I was able to:

SA=Strongly Agree; A=Agree; N=Neutral; D=Disagree; SD=Strongly Disagree

	SA	A	N	D	SD
(a) take lecture notes successfully					
(b) use my lecture notes to study					
(c) use my text book to study					
(d) gain understanding from completing problems					
(e) combine different topics to gain deeper understanding					
(f) apply the theorems presented in the lectures					
(g) avoid getting lost in the subject content					
(h) use Blackboard					

Question 10: A course in tertiary study techniques should include these topics:

Thank you for participating

Figure 1: Survey on student expectations

A final open ended question asked the students to suggest appropriate study techniques upon reflection of their perceptions of learning styles and approaches to their studies. The rest of the questions required a yes/no answer to define the student background and expectations of learning styles and included demographic information relevant to the participant groups. All questions were identified with links to; the different learning styles and the broad range of student experiences leading to improvements of teaching.

Results

A total of 161 students were surveyed. This sample consisted of 114 (70.8%) domestic and 47 (29.2%) international students. While the research was conducted in the second semester, there were 14 (12%) domestic and 18 (38%) international students that were mid-year intakes.

Between 70% and 88% of domestic and international students responded positively to *Questions 4, 5 and 6* that asked them about their expectations of university teaching styles (70% & 79%), university learning styles (77% & 84%) and having the ability to transfer their learning skills to a tertiary context (77% & 88%).

Table 1 summarises the responses of the students at the commencement of their tertiary studies to *Question 7*, while Table 2 summarises the responses of the students who had completed one semester of their studies to *Question 9*.

Table 1: Student responses to *Question 7* of the survey

Skills	Domestic	International
(a) <i>I was able to take class notes successfully</i>	66%	74%
(b) <i>I was able to use my class notes to study</i>	73%	68%
(c) <i>I was able use my text book to study</i>	78%	79%
(d) <i>I was able to gain understanding from completing problem</i>	92%	68%
(e) <i>I was able to combine different topics to gain deeper understanding</i>	72%	55%
(f) <i>I was able to apply theorems presented in the class</i>	74%	60%
(g) <i>I was able to avoid getting lost in the subject content</i>	61%	60%
(h) <i>I was able to use Blackboard</i>	40%	62%

Table 2: Student responses to *Question 9* of the survey

Skills	Domestic	International
(a) <i>I was able to take class notes successfully</i>	86%	70%
(b) <i>I was able to use my class notes to study</i>	85%	67%
(c) <i>I was able use my text book to study</i>	75%	81%
(d) <i>I was able to gain understanding from completing problem</i>	94%	81%
(e) <i>I was able to combine different topics to gain deeper understanding</i>	72%	55%
(f) <i>I was able to apply theorems presented in the lectures</i>	82%	56%
(g) <i>I was able to avoid getting lost in the subject content</i>	69%	59%
(h) <i>I was able to use Blackboard</i>	91%	89%

For the responders who attended the university for two semesters, their responses to *Questions 7 and 9* were also compared. Figure 2 shows the result where a negative value indicates a self-rated loss of that

ability, a zero value indicates that the ability had not changed over the semester and a positive value indicates that the student thought that their ability in that skill had improved during the course of their first semester of studies.

The free-form question, *Question 10*, was answered by 46 (28.6%) students with a clear preference for an introductory course that covers ‘lecture-note taking’ and ‘time management’.

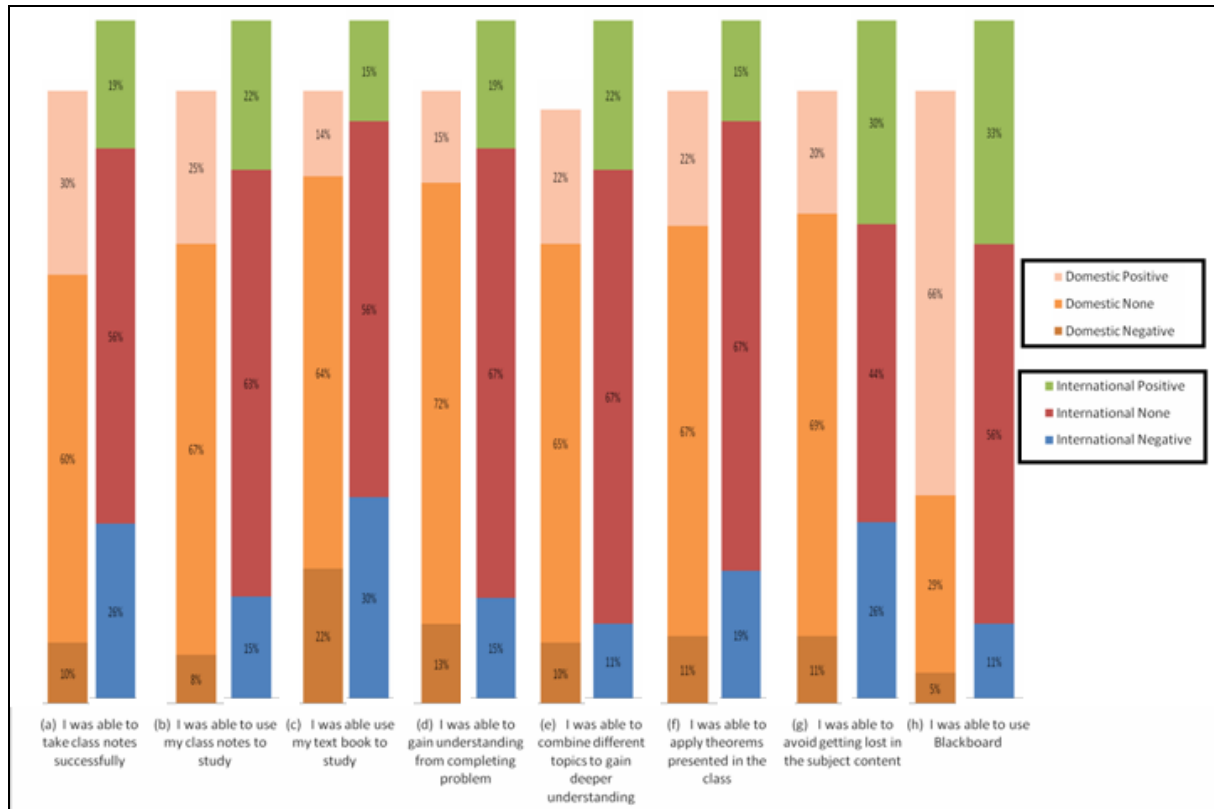


Figure 2: Perceived improvement over the first semester

Discussion

The answers to *Questions 4, 5 and 6* appear to have been independent of background; that is both domestic and international students (within 11% of each other) responded in the same proportions. An examination of the survey results shown in Table 1 indicates that the majority of both domestic and international student participants did not perceive a change in the greater part of their learning skills after one semester.

In their responses to *Question 7(d)* 92% of domestic and 68% of international students agreed with the statement that “*I was able to gain understanding from completing problems*”. The difference in these percentages was significant at the 0.0001 level. This possibly highlights, for the international cohort, a lack of exposure to experiential learning during their secondary and/or previous post-secondary education.

However, substantial proportions of international students perceived a loss of ability for three of their learning skills; namely 26% for taking notes, 26% for avoiding getting lost in the subject content (both of which were significantly higher, at the 0.05 level, than the corresponding rates for domestic students) and 30% for textbook use. Since these learning skills are highly dependent on any international student’s English language competencies (typically in reading, writing and comprehending) which can be wide-ranging, these results are not surprising.

Students learn best by deep learning (Entwistle, 2009). Using this approach students are able to question, probe and explore the applicability of material they learn. The proportions of surveyed students agreeing with the statement that “*I was able to combine different topics to gain deeper understanding*” were, for *Question 7(e)*, 72% for domestic and 55% for international students, and for

Question 9(e), 79% for domestic and 63% for international students. In both cases, the percentages for domestic students were significantly higher (at the 0.05 level) than for international students. While these groups were not the same (respondents to *Question 9(e)* were a sub-group of those who answered *Question 7(e)*), making direct comparison problematic, 22% of domestic and international students who answered both questions reported an improvement in this skill. In assessing responses regarding this skill, however, a significant factor that has to be considered is that at this early stage of their tertiary studies the students may not have an understanding of *deep learning* as applied to coursework at a university.

The results obtained for *Question 7(h)* (40% & 62%) reflect the fact that learning management systems such as *Blackboard* (Blackboard Inc., Washington, DC) are rarely used in Australian secondary institutions; as well as an indicator that international students may have had some post-secondary education before coming to Australia.

Conclusions and Recommendations

The survey results confirm that the transitioning students believed that they knew what to expect and confirmed the finding of James, et al. (2010) that they were well prepared for both learning and teaching styles in a tertiary context. For those who had completed at least one semester of their studies, while some did improve, the majority reported that there was no change in their learning skillset. Disturbingly a number of them even appeared to have “gone backwards” after being left on their own to adjust to their new environment.

This issue is going to be canvassed with a larger sample size in 2012. If the outcomes of that research confirm those of this one, then the need for a transition course focusing on tertiary learning and study skills (particularly those revealed by the responses to *Question 10*) should be established for both domestic and international students studying engineering.

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