EXPLORING STUDENT DIVERSITY: LOCAL AND INTERNATIONAL FIRST YEAR PHARMACY STUDENTS

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ABSTRACT

The Australian higher education sector has undergone significant changes in the last two decades with a wider and more diverse student population. Although the number of international students commencing in Australian universities is currently in decline, international students contribute to student diversity. The authors of this paper sought to explore aspects of this diversity through use of a questionnaire composed of questions from the literature around learning/instructional design. Questions eliciting responses from international students could be categorised into three groups: those that indicated differences between international and local students at the point of entry and after one year of study; those where responses were initially different, but after one year were similar and; those that were similar at the point of entry for both international and local students. Focus groups of both international and local students provided additional insight into the students' perceptions of their learning environment. This study is of a relatively small cohort of students, however - some of the unexpected findings such as reports by international students of hostile interactions with other students deserve further investigation. The critical difference for international students after one year of study is around communication confidence.

INTRODUCTION

The pharmacy program of the university described in this paper attracts a number of full fee paying international students from mainly south-east Asian countries, such as Malaysia and Hong Kong. International education has been a key priority for the Australian Government, both in terms of national interest and global influence. In 2008-09, education exports were up almost 25% over the previous financial year, although currently new student numbers are in decline. English language proficiency is a major challenge for this cohort of students (Benzie, 2010). South East Asian background students are also often stereotyped as passive, rote learners (Ballard, 1995). The challenge for the international students is to grasp an understanding of the learning approaches used by academics and to be able to successfully utilise them for their own learning.

Principles for a first year university curriculum include that it should be student-focussed, explicit and relevant and that the curriculum should involve and engage students (Kift, 2008). Motivation and engagement can be respectively conceptualised as individuals' energy and drive to achieve to their potential and the behaviours that follow from this energy and drive (Martin, 2008). Indicators that a university program is engaging include students being actively involved in what is going on and interacting consistently and positively with staff and fellow students (Scott, 2006).

Work in learning/instructional design has led to development of survey questions around constructs such as critical thinking, problem solving, communication skills and teaching approaches requiring students to actively engage with learning (Kember & Leung, 2005; Kember, Leung, & Ma, 2007; Kember, 2009). Questions from the need for cognition scale (Cacioppo, Petty, & Kao, 1984; Mayhew, Wolniak, & Pascarella, 2008) interrogate teaching and learning environment opportunities for reflection and perspective-taking and the provision to students of opportunities to positively interact with diverse peers (Mayhew et al., 2008). These indicators also reflect some of the graduate attributes defined by the university as the outcomes it seeks for its graduates.

This study explores the differences between two groups of undergraduate pharmacy students, local students i.e. those with Australian citizenship and full fee paying international students. Diversity in this study was explored through the use of selected questions from a student experience questionnaire (Kember & Leung, 2005) and the need for cognition scale i.e. the

tendency/motivation to engage in and enjoy learning (Cacioppo et al., 1984; Mayhew et al., 2008). The results from the questionnaire were then explored in greater depth using focus groups of students from both groups.

METHOD

Questionnaires (details of questions shown below) were made available through an online survey tool *TellUs*. The questionnaire included twelve questions from the work of Kember and Leung (2005) and seven from the work of Mayhew, Wolniak, and Pascarella (2008). Both surveys have been described as being responsive to the learning environment (Kember & Leung, 2005; Mayhew et al., 2008). In order to keep response rates high, the length of the survey was deliberately kept short, such that it could be completed in ten minutes or less. Questions from both of these surveys were chosen to cover a range of aspects of the learning environment. The first survey was distributed in April 2009, the second in March 2010. All students enrolled in the first year (2009, survey 1) and second year (2010, survey 2) respectively were emailed information about the reasons for undertaking the survey and invited to respond. Items were rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Data collected through the online tool were automatically de-identified. All statistical procedures were carried out using SPSS, version 17. The Mann-Whitney U test was used to determine probabilities. Students were not individually tracked with respect to responses to the first and second survey. The attrition rate between first and second year was 5%.

Focus groups were conducted in August 2009 by an independent researcher not associated with the pharmacy program. All students enrolled in the first year in 2009 were emailed information about the reasons for undertaking the focus groups and invited to participate. Separate focus groups were held for the full fee paying international (10 students) and local students (9 students). The purpose of focus groups was to elicit a multiplicity of views within the group context (Morgan & Kreuger, 1993). Questions were constructed to tease out those areas where significant differences between local and international students had been observed in responses to the online survey in the first year of study. Notes of the discussion were taken by the researcher. Themes arising were collated and analysed through manual processes involving sorting of notes; reading through information to make general sense; recording of thoughts about the data and organising material into categories (Strauss & Corbin, 1998). The study design was approved by the University of South Australia Human Research Ethics Committee (P304/08).

RESULTS

In 2009 a 63% and 69% response rate to the online survey was achieved for local and international students respectively in their first year of the Pharmacy program. For those students who had progressed to the second year of their Pharmacy program by 2010, the online survey response rates were 58% and 64% for local and international students respectively.

In the first year of questionnaire distribution, questions regarding student demographics were also included. Unsurprisingly, in the first year, there were significant differences between the students' living arrangements; 72% of local students lived at home with their family, 63% of international students lived in shared accommodation. The percentages of students for whom this was the first year of study at university were 85% for local and 90% for international students respectively. Both local and international students appear to have similar entrance pathways to university. Of the international students, 50% had completed South Australian Matriculation (SAM) and 25% had completed the South Australian Certificate of Education (SACE). Students, who complete the one year SAM program are accredited with SACE. SAM is identical to SACE with respect to curriculum and examinations but provides an opportunity for students to study in their own countries. Students living in South Australia complete a two year SACE program. Of the local students, 74% had completed SACE.

Three questions were identified where there were differences between local and international students across both years. These related to problem solving skills, communication skills and adverse interactions with other students (Table 1).

There were no differences recorded between both student groups and across the two years for another six domains which examined adaptability and enjoyment of learning.
- I am willing to change and accept new ideas (adaptability, (Kember & Leung, 2005))
- I prefer complex to simple problems (need for cognition, (Mayhew et al., 2008))

- I prefer to think about small, daily projects to long-term ones (need for cognition, (Mayhew et al., 2008))
- I really enjoy a task that involves coming up with new solutions to problems (need for cognition, (Mayhew et al., 2008))
- The idea of relying on my thinking skills to make my way to the top appeals to me (need for cognition, (Mayhew et al., 2008))
- I have occasionally shared personal feelings and problems with fellow students or staff (need for cognition, (Mayhew et al., 2008))

Table 1: Questions for which on entry to the university (first year), and after one year in the program (second year), local and international students responded differently. Items were rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree, (5); mean ± S.D. is shown. There was no difference between responses in the first and second year for local students.

	first year of program		second year of program	
	Local n = 47	International n = 41	Local n= 42	International n=38
I am able to solve problems in a systematic way (problem solving, Kember & Leung, 2005)	3.94 ± 0.53	3.44 ± 0.71	4.05 ± 0.43	3.72 ± 0.65
I feel confident that I can communicate with a wide range of people (communication skills, Kember & Leung, 2005)	4.06 ± 0.67	3.22 ± 0.76	3.93 ± 0.59	3.62 ± 0.75
During my schooling (first year) or first year of university (second year) I have occasionally had tense, somewhat hostile interactions with other students (need for cognition, Mayhew et al., 2008)	2.46 ± 0.97	3.03 ± 1.00	2.41 ± 0.82	3.23 ± 0.99

Table 2 presents the ten questions where differences did occur between to two student groups in first year, but at the time of the second survey, those differences had vanished. International students were consistently less confident in their abilities across these ten questions than local students in the first year.

The focus group questions explored the three questions around problem solving, group work and positive and negative experiences in the learning environment where there were differences between both student groups across both years (Table 1). Responses to these questions are described below.

PROBLEM SOLVING
With respect to the development of their problem solving skills, both groups of students described the importance of learning problem solving protocols, of receiving feedback and coming to accept the frequent situation in pharmacy that there was often no single correct answer.

COMMUNICATION SKILLS
Regarding the capabilities that they would need in order to complete the pharmacy degree, both local and international students spoke about the importance of communication skills, including communication with lay persons in pharmacy practice, and about the importance of being able to apply theoretical knowledge in practice contexts and adapt this knowledge to specific practice situations. Although raised by both groups, communication skills were the focus of discussion for international students. Interestingly only local students brought a wider perspective as they spoke about interest, passion, persistence and resilience as well.

INTERACTIONS WITH OTHER STUDENTS
Both groups of students reported that group work was potentially the basis of negative interactions between students. Communication skills and group dynamics were also described as playing a key role in group work by both international and local students. To facilitate positive interactions between students, both local and international students spoke of a need for multiple mediums and opportunities for development of connections, for example organised sporting events. Local students described the value of group work in the context of networking and social capital development beyond

university and into a professional context. They suggested that alternating between students choosing their own team and academics allocating team members was a good approach for academics to adopt. This would allow students opportunities to learn from students with different cultural backgrounds. With respect to negative interactions between students, international students referred to their observation that some cultural groups would work closely together alienating members of other groups. Local students did not specifically comment on this aspect.

With respect to positive interactions between students, international students described how some students patiently listened to others even those for whom English was not their first language, in the process, respecting others and their cultures. Local students described favourably one of the first year courses where students undertook role play. Both groups of students described collaborative approaches as helping to increase confidence and reduced the fear of being wrong.
Differences were observed between the international and local students with respect to their discussions about making judgements. International students commented that they may draw on their own beliefs and moral perspectives whereas local students spoke about the need to both know, and then to know how to apply a framework for decision making.

Table 2: Questions for which on entry to the university (first year), local and international students responded differently, however after one year in the pharmacy program (second year) their responses were similar. Items were rated on a five-point Likert scale ranging from strongly disagree (1) to strongly agree, (5);   mean ± S.D. is shown (p = 0.05). There were no statistically differences between responses in the first and second year for local students.

	first year of program		second year of program	
	Local n = 47	International n = 41	Local n= 42	International n=38
I feel confident in my ability make value judgements about different ideas. (critical thinking, Kember & Leung, 2005)	3.96 ± 0.69	3.46 ± 0.54	3.93 ± 0.70	3.72 ± 0.69
I am willing to consider differing points of view (adaptability, Kember & Leung, 2005)	4.30 ± 0.66	3.80 ± 0.64	4.20 ± 0.55	4.08 ± 0.58
When faced with difficult problems, I can often come up with new ways to deal with them (creativity, Kember & Leung, 2005)	3.87 ± 0.61	3.63 ± 0.58	3.91 ± 0.48	3.69 ± 0.69
I am able to look at existing issues or problems in different ways (creativity, Kember & Leung, 2005)	3.87 ± 0.68	3.49 ± 0.64	3.79 ± 0.67	3.72± 0.69
I feel that I can take responsibility for my own learning (self-managed learning, Kember & Leung, 2005)	4.30 ± 0.59	3.90 ± 0.67	4.11 ± 0.78	4.03 ± 0.63
I am confident of my ability to pursue further learning (self-managed learning, Kember & Leung, 2005)	4.30 ± 0.66	3.59 ± 0.63	3.98 ± 0.83	4.00 ± 0.66
I have learnt how to be adaptable (adaptability, (Kember & Leung, 2005)	3.96 ± 0.79	3.74± 0.59	3.89 ± 0.84	4.18 ± 0.60
I am able to bring information and ideas together in order to solve problems (problem solving, Kember & Leung, 2005)	4.00 ± 0.59	3.68 ± 0.62	3.95 ± 0.61	3.69 ± 0.73
I am an effective team or group member (interpersonal skills, Kember & Leung, 2005)	3.98 ± 0.71	3.38 ± 0.74	3.93 ± 0.66	3.72 ± 0.76
I like the responsibility of handling a situation that requires a lot of thinking (need for cognition, Mayhew et al., 2008)	3.51 ± 0.78	3.20 ± 0.64	3.55 ± 0.59	3.96 ± 0.86

DISCUSSION

Exploration of student diversity in this study was undertaken through the use of selected questions from a student experience questionnaire (Kember & Leung, 2005) and the need for cognition scale (Cacioppo et al., 1984; Mayhew et al., 2008). The results of our study indicate that for local students there were no significant differences between the responses given several weeks into the first year of study and those given several weeks into the second year of study. With respect to international students, questions from previous work (Kember & Leung, 2005; Cacioppo et al., 1984; Mayhew et al., 2008) could be divided into three groups- questions where responses remained significantly different from those of the local students, questions where responses after one year were similar to those of local students and questions where responses of local and international students were the same at the commencement of study and one year into study.

After one year of studying in the program, international students responded in a similar way to local students to all but three questions drawn from previously reported work around graduate attributes (Kember & Leung, 2005) and the need for cognition (Cacioppo et al., 1984; Mayhew et al., 2008).The three questions for which the international students responded differently (Table 1), even after one year of study, investigated systematic problem solving, communication and negative interactions with other students. The first of these questions investigating problem solving is difficult to explain given the similarity in responses to questions exploring the bringing of information and ideas together in order to solve problems and coming up with new solutions to problems. The responses to the question exploring confidence in communication could be anticipated given our own (Stupans, Rao, March, and Elliot, 2008) and others (Xu & Davidhizar, 2005; Bolderston, Palmer, Flanagan, & McParland) experiences. In focus groups, both local and international students spoke about the importance of communication skills.

The significantly different responses of the local and international students to the question of negative experiences, specifically tense, somewhat hostile interactions, in the school setting and at university presents a dilemma which needs further interrogation. International students studying in Australia have reported feelings of isolation and language difficulties (Robertson, Line, Jones, & Thomas, 2000). The lack of interaction between Australian students and international students from Asian backgrounds has been referred to as *"one of the most disturbing aspects of the internationalisation of higher education in Australia"* (Volet & Ang, 1998). However, tense and hostile interactions in the school and university setting present an entirely different dimension which cannot be explained through isolation or need for adjustment. Potentially, international students may respond in a different manner to situations which arise in the education setting. A study which examined academic adjustment in the first year of study in a Faculty of Commerce and Management program (Ramsay, Barker, & Jones, 1999) found that while both local and international students reported a very wide range of emotions during the first year of study, international students reported more extreme emotions at times including reactions to lectures and tutorials.

The questions for which both local and international students responded in a similar way at both the point of entry and after one year of studying are listed above. Interestingly all but one of these questions were drawn from the need for cognition scale (Cacioppo et al., 1984; Mayhew et al., 2008). Similarities between international and local students may be explained first, by considering that students in Australian pharmacy programs enter these programs with high secondary education assessment scores and an "achieving" approach. Second, a review of studies which had utilised the need for cognition scale indicated that need for cognition was positively related to education level (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Both our international and local students had very similar education backgrounds prior to entry into the program.

Questions where international students responded differently to local students at the point of entry, but similarly after one year of study within the program are shown in Table 2. All but one of these questions are drawn from the work of Kember and Leung (2005) and are associated with constructs such as critical thinking, problem solving, communication skills and teaching approaches requiring students to actively engage with learning.

Both local and international students spoke in focus groups about the challenges of group work; international students' responses to the question of being an effective group participant indicated their perceived improvement in group work skills. A US study has reported that first year international students were more engaged in effective educational practices than were local students (Zhao, Kuh, & Carini, 2005). Our data regarding questions in Table 2 may reflect this engagement whereby active engagement with learning has been identified (Kember & Leung, 2005). Both groups of students focussed on group work as a tense activity which was potentially the basis of negative interactions between students. International students referred to their observation that some cultural groups would work closely together as an exclusive group alienating others. Our work indicates that international students appear to have engaged positively with the learning environment, potentially having internalised concepts such as dealing with new situations or ideas, solving unfamiliar problems, working as a member of a team, communicating with a wide range of people and pursuing further learning.

This study utilised several questionnaires to identify any differences between local and international students, followed by focus groups to further analyse any identified differences. An unexpected

finding relating to reports by international students of hostile interactions with other students was uncovered. This finding needs to be further researched to understand its frequency of occurrence, effect on student satisfaction and implications for successfully integrating international students into university study. The study also clarifies aspects of differences between international and local students and suggests that communication may be the critical element which contributes to the stereotypical views (Ballard, 1995; Skyrme, 2007)) of international students in higher years of academic programs.

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