Effective Teaching in Universities

Are Students' Basic Needs Being Satisfied in Large Classes?

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Abstract: In a quest for a more efficient education system, many organizations have opted to increase class size. It is a common perception that large subjects are economical to run and small subjects are not. Many in the tertiary education system have had concerns with issues involved in the teaching of large classes, including teaching quality and whether there are effective learning outcomes for students. As with any complex issue, there are several approaches that could be utilized to assess whether the needs of stakeholders are being met. Stakeholders include the institution, the teaching staff, the community and the students. This study aims to assess whether universities are satisfying the needs of students as class size is increased. The study focuses on satisfaction with large classes and includes an assessment of the satisfaction of students’ psychological needs. These constraints are measured in small, medium and large classes to identify the change in the level of satisfaction. The study used a multi-method approach consisting of a literature review, a qualitative phase involving in-depth interviews, focus groups, and a quantitative survey. The results show that while customer satisfaction is being met, the satisfaction of students’ psychological needs are not being fully realised. It was also found that there were notable variations between individual students, the subjects being studied and degree streams of students taking the same subject. The implications of these findings and suggestions for further investigation are discussed in this paper.

Keywords: Higher education class size, Student needs, Psychological needs satisfaction

Introduction

Accountability of Universities

Participation rates at universities are increasing. At the same time, there are increasing demands for universities to be accountable for the management and delivery of education while achieving gains in productivity. Increasing demands for accountability in the higher education sector is reflected in the annual publication of performance indicators for higher education institutions across the globe. For example:

- ‘Performance Indicators’ in the United Kingdom (HESA 2004);
- ‘Higher Education Outcome Indicators’ in Australia (DEST 2004); and

The emphasis on teaching quality and effective learning outcomes is an important aspect in tertiary education. For the marketing discipline to continue to make an impact in building business and shaping society, faculties must ensure that aspects that determine the quality of course offerings continues an imperative consideration for marketing educators.

An issue closely related to quality is the cost of providing an efficacious education system. It is a common perception that large classes are economical to run and small subjects are not. What is unclear is the point at which scale economies become effective and whether they are optimised through the management of large subjects. Optimisation is a productivity issue that should only be addressed in the context of a good understanding of the outcomes, effectiveness and quality related issues. The intention of this study is to examine these issues more closely in the context of achieving optimum scale economies while providing good quality educational outcomes.

This study utilises self-determination theory and psychological needs satisfaction as a basis of assessing students’ perceptions of learning experiences in subjects with large enrolments.

Self-determination theory (STD) has been investigated from an educational perspective and studies have confirmed that ‘self-determined’ individuals are better able to learn and perform in an educational environment (Deci 1975; Deci and Ryan 1985; Deci and Ryan 2000; Filak and Sheldon 2003; Ryan and Groth 1986).

Self-determination theory maintains that an understanding of human motivation needs to take into account innate psychological needs for competence, autonomy, and relatedness (Deci and Ryan 2000).
Autonomy occurs when students perceive that they are in control of their own behaviour and are not externally directed. The student perceives that they have the opportunity to make choices or be provided with meaningful rationale when choice is not possible (Deci and Ryan 1985). Studies have shown that learning situations, in which autonomy support is provided, relative to perceived self-control, were associated with more positive outcomes, including greater intrinsic motivation, increased satisfaction, and enhanced well-being (Reis et al. 2000; Ryan and Grolnik 1986).

Competence is the capacity for the individual to effectively interact with their environment (White 1959). In an educational setting, students are motivated by their increasing competence as they learn and rely on feedback. Feedback can come from three sources: the task itself, comparisons of past performances with current performance and the evaluations of others (Deci 1975; Reeve 2001). This feedback can provide self-satisfaction and encouragement (Bandura 1997; Deci 1975; Ryan and Grolnik 1986).

Relatedness is a feeling of being understood and being provided with a caring relational support base (Deci and Ryan 2000). Students show greater intrinsic motivation when they perceive their teachers to be warm and caring (Ryan et al. 1994). However, Deci and Ryan (2000) believe that the main role of relatedness is to provide support for autonomy and competence in an educational environment.

An aim of this study is to develop and test scales that could be used to evaluate the teaching of subjects with large enrolments in the higher education sector using self-determination theory and basic needs satisfaction scales as a basis.

It is evident that the higher education sector is becoming more competitive and that there are greater expectations placed on institutions to meet the needs of students (Cheng and Tam 1997). Some of the approaches used to address this issue in higher education include quality assurance schemes (Centre for Education and Development and Support 2004; King et al. 1999), a marketing orientation in which the student is viewed as a consumer whose expectations require addressing (Browne et al. 1998), and studies of student satisfaction (Elliot and Shin 2002; Gremelar and McColough 2002). The study of large classes presents many complex issues (Cuseo 2004; Foltman 1994; Gilbert 1995; Hanushek 2002; HEROS 2004). Large classes have been studied across a range of disciplines internationally (AACSB 1998; Keil and Partell 1997; Office of Institutional Research 2001). The Teaching and Educational Development Unit at Queensland University (Australia) have reported that there have been relatively few studies reported in the literature (TEDI 2001a). Large subjects are usually core business subjects in which all students are required to enrol. They can be defined as having more than 200 students enrolled, more than one lecture stream (multiple lecture times) and lectures that are usually held in large lecture theatres. The management of these classes often requires the close coordination of multiple lecturers and many tutors (with a large proportion often being employed on a sessional basis). This is in contrast to smaller subjects that often have one stream and one lecturer and in this case the lecturer is often involved with tutorials.

The AUTC report (TEDI 2001a) provides a summary of the main issues concerning class size:

- Teaching management and curriculum issues,
- Administration, resources and institutional support issues,
- Student achievement issues,
- Teaching and learning strategies,
- Assessment issues,
- Teacher effectiveness,
- Student experiences in the learning environment,
- Student satisfaction issues, and
- Policy issues.

A synthesis of empirical research by Cuseo (2004) suggests eight detrimental outcomes in relation to large classes in higher education environments:

- Reduced frequency of instructor interaction;
- Reduced breadth and depth of course objectives;
- Increased faculty reliance on the lecture method of instruction;
- Less active student involvement in the learning process;
- Reduced depth of student thinking inside the classroom;
- Lower levels of academic achievement (learning) and performance (grades);
- Reduced overall course satisfaction with the learning experience; and
- Lower student ratings (evaluations) of course instruction.

(Cuseo 2004)

The influence of class size on student academic achievement has been the subject of much debate over the last 70 years. Most researchers from 1995 onwards, acknowledge that, although the findings are mixed, there is some correlation between smaller class sizes and student performance. However this only occurs under specific conditions, for specific groups of students, in specific subjects (Hanushek 1998). (TEDI 2001b; American Educational Research Association 2003).
Personal interaction between students and teaching staff is believed to influence student achievement for the following reasons:

Changes in student and teacher behavior are believed to be a major reason why small classes work.

Teachers in small classes pay greater attention to each pupil.

Students in these classes experience continuing pressure to participate in learning activities and become more involved students.

Attention to learning goes up, and disruptive and off-task behavior is lowered (American Educational Research Association 2003, p.2).

The main criticism of large classes and particularly lecture modes of delivery is a perceived inability to motivate students and to stimulate higher order cognitive skills. However, researchers believe that the quality of teaching can mitigate some of the disadvantages associated with large classes (Gilbert 1995; TED1 2001b).

There have been numerous studies on students' experience in the university environment where reported feelings of anonymity, being overwhelmed and vulnerable are common (McInnis and James 1994; McNamara and Kelly 1996; Ward and Jenkins 1992, in TED1 2001b). When students experience anonymity they can feel less personally responsible (Ryan and Deci 2000) this can ultimately undermine their motivation to learn and increase dissatisfaction (Astin 1993, in TED1 2001b) and student attrition (Grayson 2003). In other words, students in this situation are 'ill-equipped to function in the university environment that is so dependent on self-motivation and self-discipline' (Holdaway and Kelloway 1987, in TED1 2001b, p.4). The effects of feelings of anonymity and isolation are particularly problematic for students in their first year at university as they lack the necessary study skills and independence to cope in this environment (Mathews and Strauss 1998).

Methodology

The study used a multi-method approach consisting of a literature review, a qualitative phase involving in-depth interviews with teaching staff; two focus groups and a survey with students who have undertaken introductory level marketing in a large class format. The sequential triangulatory approach is most appropriate for a study of this type (Saunders et al. 2003).

The qualitative research phase involved four aspects:

Two focus groups with students,

In-depth interviews with five lecturers/coordinators of large undergraduate marketing subjects,

A focus group with coordinators of large subjects,

In-depth interviews with six marketing lecturers.

For the purpose of this paper, however, the results of the qualitative research phases outlined above are confined to the student focus groups.

The survey used a scale that Falak and Sheldon (2003) had adapted from the Basic Psychological Needs Scale (Iardii et al. 1993) for an education application. The Cronbach's Alpha reliability coefficients for the constructs were: Control 0.83, Competence 0.81, and Caring 0.77. After adaptation, the five point Likert scale was pre-tested before being administered to a convenience sample of students during the final week of teaching. The sample of 366 students was obtained at a university that has an annual enrolment of more than 2000 students in an introductory marketing subject where multiple streams, multiple lecturers and numerous tutorials are employed.

The sample consisted of a majority of full-time students (93%) with a good representation of high achievement (36.9%) and moderate achievement (43.1%). Approximately one third of students were enrolled in marketing degrees and two-thirds enrolled in a variety of other business degree courses. The sample was somewhat skewed with regard gender with 64% female and 36% males. There was a good representation of students from various entry modes with students from high school (57.7%), TAFE (24.7%), and other universities (17.6%). Students from 1st year (59.3%), 2nd year (29.4%), and 3rd year (11.3%) were also represented. Subsequently the data was analysed using MANOVA and ANOVA to identify differences in the basic needs constructs according to various student characteristics.

Results and Discussion
Table 1: Summary of Student Survey Results

<table>
<thead>
<tr>
<th>Main Issues</th>
<th>Sub-issues</th>
<th>Survey questions</th>
<th>Mean score (1-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions of large classes</td>
<td>Preferences in subjects with large enrolments</td>
<td>I prefer to enrol in subjects that have small numbers of enrolments. I try to avoid selecting lecture streams with large numbers of students.</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>Perceived advantages</td>
<td>I like subjects that have more choice in the lecture times.</td>
<td>4.2</td>
</tr>
<tr>
<td></td>
<td>Perceived disadvantages</td>
<td>I feel that I learn less in large classes. I am more distracted in large lectures. My concentration is adversely affected in large classes.</td>
<td>2.8</td>
</tr>
<tr>
<td>Participation in large lectures</td>
<td>Large lecture attendance</td>
<td>I don’t like attending lectures when there is a large number in the lecture heater. I would say that I miss more lectures in subjects that have large enrolments than subjects with small enrolments</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td>Student involvement in lectures</td>
<td>It doesn’t worry me if the lecturers for subjects with large enrolments are less likely to get to know me. I feel more isolated in large lectures. I feel as though I can be unnoticed in a subject with large enrolments. I am less likely to ask questions in large lectures than I otherwise would in a small lecture.</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Table 1 identifies students’ preferences for subjects with small, rather than large enrolments. Of note are the perceived advantages of having a choice of lecture times that subjects with large enrolments are able to provide (mean 4.2).

While students acknowledged that they were more distracted and their concentration level was adversely affected in large classes, they identified that they didn’t necessarily learn any less in the larger classes. Further, their decision whether to attend lectures was not necessarily affected by class size.

Students in subjects with large enrolments believe that they are less likely to be noticed by teaching staff and are less likely to be personally known by the lecturers. This aspect was of little concern to students, as were feelings of isolation in these subjects. Students also indicated, however that they were less likely to ask questions in large lectures.

Comments obtained from focus groups provide the following insights into student perceptions and experiences with large subjects:

- Subjects with large enrolments are not considered to be problematic for students providing subjects are managed and delivered by high quality, experienced teaching staff;
- Students want lectures that will engage them and that add value to the lecture notes that they are able to download from the subject web site;
- Students prefer personal interaction with teaching staff rather than the anonymity that can accompany subjects with large enrolments;
- Tutorial groups of between 15-20 students are considered an optimum number to enable good quality discussions to take place;
- Smaller tutorial groups also provide an opportunity for students to receive individual assistance when required;
- Student opinions were divided on an appropriate mix of lecture and tutorial duration and frequency, and this area may be worthy of further research;
- Students are happy with completing on-line tests;
- Those students who have used WebCT in the past have a preference for this system over traditional subject web sites;
- Students prefer subject web sites with more interactive features, particularly the ability to download videos of previous lectures; and
- None of the students participating in this phase of the study had taken class size into account when selecting a university course to attend.
The results of the survey, outlined in the following section, provide further insight into student perceptions, attitudes and experiences with large subjects according to the constructs based on self-determination theory.

Respondents were asked to rate their level of agreement with statements that made up each of the constructs. Examination of the results for the 'agree' and 'strongly agree' indicates the following levels of agreement with the statements in the respective constructs; Control (65.5%), Competence (49.0%) and Caring (57.6%). This indicates that the psychological needs satisfaction of many students is not being fully realised.

In regard to the Control construct, it is apparent that the students were relatively satisfied with these aspects of large classes with an average of 65.5% of students providing a positive response to this construct. Overall, 69% of students believed that they have control of their learning, with 60.6% feeling free to express their opinions and 60.8% indicating that they were given adequate consideration of their point of view. However, some focus group participants identified several disadvantages with discussion forums in large tutorial groups or, as one student commented 'The disadvantage [of large groups] is that some students feel overwhelmed by the large numbers and keep their mouth shut.'

Table 2: Control Results for MANOVA and ANOVA Analysis

<table>
<thead>
<tr>
<th></th>
<th>*Reliability Coefficient</th>
<th>Manova</th>
<th>Gender</th>
<th>Year level</th>
<th>Achievement level</th>
<th>Marketing degree</th>
<th>Previous study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control 1</td>
<td>0.66</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel I was in control of my learning in this subject.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I was free to express my opinions in this subject.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>In this subject, my point of view was given adequate consideration when I presented it.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
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</table>

1 All factors exhibited satisfactory reliability with alpha scores greater than 0.6.

With regard to the construct Control, the Manova showed that no dependent variables were statistically significant.
Table 3: Competence Results for MANOVA and ANOVA Analysis

<table>
<thead>
<tr>
<th>Competence</th>
<th>*Reliability Coefficient</th>
<th>Manova</th>
<th>Gender</th>
<th>Year level</th>
<th>Achievement level</th>
<th>Marketing degree</th>
<th>Previous study</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoyed the challenges this subject has provided.</td>
<td>0.63</td>
<td>sig</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>sig</td>
<td>sig</td>
</tr>
<tr>
<td>Most days I felt a sense of accomplishment from doing work in this subject.</td>
<td></td>
<td>ns</td>
<td>ns</td>
<td>sig</td>
<td>sig</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>I think the tasks I did in this subject were very stimulating.</td>
<td></td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>sig</td>
<td>ns</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence</th>
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<th>Manova</th>
<th>Gender</th>
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<td></td>
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<tr>
<td>I think the tasks I did in this subject were very stimulating.</td>
<td></td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>sig</td>
<td>ns</td>
<td></td>
</tr>
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</table>

*All factors exhibited satisfactory reliability with alpha scores greater than 0.6. ‘sig’ indicates significance at the 0.05 level.

With regards the Competence construct, which represents the challenge that the subject provided and the sense of accomplishment obtained from undertaking the subject, it is evident that less than 50% of students are positive towards these factors. Within the construct, 57% enjoyed the challenge but only 41.5% found the subject stimulating. 48.4% felt a sense of accomplishment and slightly more than half of the students (51.8%) reported that the tutor understood them. For example, one student who felt that they were not stimulated in the subject commented, ‘They need to get us more involved. Get everyone doing stuff because a lot of the time you go there and you won’t remember what you did last week…’

While another commented, ‘when I got bored, I found it hard going.’

The Manova analysis identified that the construct Competence was statistically significant at the 0.05 level. Within this construct there were two variables that were statistically significant (Marketing Degree and Previous Study). This indicates that the marketing degree students found the subject more challenging, while the higher achieving students found the subject both challenging and stimulating. Those students who had no previous tertiary study experience showed a slightly less positive result than those with previous study.
Table 4: Caring: Results for MANOVA and ANOVA analysis

<table>
<thead>
<tr>
<th></th>
<th>*Reliabili-</th>
<th>Manova</th>
<th>Gender</th>
<th>Year level</th>
<th>Achievement level</th>
<th>Marketing degree</th>
<th>Previous study</th>
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<td></td>
<td>*ity Coeffi-</td>
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<td></td>
</tr>
<tr>
<td>Caring 1</td>
<td>0.86</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The tutor cared about my progress.</td>
<td>sig</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>The tutor cared about me.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>I feel that the tutor understood me.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>The tutor was pretty friendly towards me.</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

1 * All factors exhibited satisfactory reliability with alpha scores greater than 0.6. ‘sig’ indicates significance at the 0.05 level.

In relation to the Caring construct, 57.6% of students supported this contention. Within the construct, three-quarters of the students (74.8%) believe that the tutor was pretty friendly towards them; however, only 47.9% thought that the tutor cared about them, and 55.9% considered that the tutor cared about their progress. This was highlighted by the following quotes from students, “I think in the smaller ones [subjects] you get to know your lecturers and tutors so if you do have a problem you can go to them...” Commenting on the smaller classes one student remarked, “…where they treat you like a person rather than just another student.” Limited opportunities to ask questions and obtain deeper explanations of subject material were also cited as negative aspects of large classes.

Relating to the Caring construct, the Manova analysis indicates that the male students found the tutors more caring.

Conclusions

The extent to which class size influences students’ active involvement and subsequently, student learning is the subject of extended debate in the literature. As large enrolments tend to rely on lecture modes of delivery the issue of active involvement is brought into question, particularly in relation to the development of higher order cognitive skills. The aim of this study was to assess whether universities are meeting the needs of students in large marketing classes. The study investigated the application of self-determination theory and psychological needs satisfaction. The basic needs scale, comprising three constructs; Control, Competence and Caring was adapted and used to evaluate students’ perception of an introductory marketing subject.

The lack of student involvement in lectures identified in this study can be offset by a variety of teaching techniques, provided that teaching staff are experienced enough to adapt their teaching methods to suit the challenges of large classes. These include maintaining interest, dealing with disruptive behaviour and providing opportunities for students to be actively involved in the learning process. However, some students feel a sense of isolation and anonymity when part of a large class. This situation can be particularly problematic for first year undergraduate students who lack the skills to be independent, self-motivated learners. It was also noted that opportunities to provide feedback to students might be hampered in larger classes due to extended demands on the resources of teaching staff. The volume of assessment that must be undertaken with large classes results in a tendency to rely on multiple choice tests rather than assessments involving essay style answers. These problems can be countered to some degree by providing activities aimed at building student support networks such as small group activities, collaborative problem solving sessions and through peer assisted study groups.

The results of this study also highlight that the psychological needs satisfaction of many students is not being fully realised. It is noteworthy that there were differences between marketing and non-marketing students. The marketing degree students enjoyed the challenges and were more stimulated by the subject than non-marketing degree students. There was a significant difference between the higher achieving students, who enjoyed the challenge of the subject, and the lower achieving students.

These results identify that a substantial cohort of students’ psychological needs were not being met. Many of the non-marketing degree students are enrolled in other business related programs and have a compulsory enrolment requirement in the marketing subject. As studies have confirmed that ‘self-determined’ individuals are better able to learn and
perform in an educational environment these results. These differences need to be taken into account in quality education applications so that needs of all students are being satisfactorily addressed.

As a result of this study, it is suggested that further research should compare subjects with relatively small enrolments to those with large enrolments. This would enhance the value of this method of assessing student satisfaction. Also, the use of a larger sample across other universities would confirm whether these findings are consistent with other institutions. Finally, a structural model should be developed to expand on this investigation of student satisfaction and the constructs used in the study.

Finally, further research on student perceptions of the learning experience in large classes is warranted. Although being part of a large class has disadvantages, students were basically satisfied providing there was minimum disruption and good quality lecturing in the large lectures. Students also accepted that large classes were a necessary part of the core subjects within degree courses. The findings, discussed within this study, suggest that to enhance the effectiveness of university teaching, program designers should have a better understanding of the efficacy of the large class format for degree subjects.

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