

IMPROVING STUDENT SATISFACTION IN UNDERGRADUATE CONSTRUCTION MANAGEMENT STUDIES

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ABSTRACT

Recently, student satisfaction scores attained via Course Experience Questionnaires (CEQs), have been introduced as a means of influencing Government funding of Universities – the higher the score the better the funding. Historically, building construction management courses have not necessarily fared well in student satisfaction scores. The purpose of this paper is therefore to obtain a deeper understanding of the issues that students are most concerned about in relation to their course experience and to develop strategies that aim to improve student satisfaction in construction management courses. Customer satisfaction theory was used as basis for posing hypotheses relating to variances in satisfaction and the impact of employment work load on satisfaction. A questionnaire was developed using the 13 standard CEQ questions as a base, and a survey was conducted with all students enrolled in the Bachelor of Building Construction Management Program at the University of New South Wales (UNSW) in October 2005. A cross sectional analysis of student satisfaction scores across all 4 years was undertaken. It was found that first year students were the least satisfied and final year students the most satisfied with the course. Students' paid work/employment was not directly related to their course satisfaction, though there was a correlation for specific questions in the CEQ instrument. It is concluded that student satisfaction is a complex and multifaceted construct that needs to be modelled in a way that holistically links significant variables together. To enable this, further quantitative study should be undertaken to go further in identify significant variables, coupled with qualitative study to find out how they are linked together.

INTRODUCTION

University student satisfaction levels have been on the Australia Federal Government's higher education policy agenda for many years. For instance, the document "Higher Education: A policy Discussion Paper" (Dawkins 1987) called for the need to assess the quality of higher education in Australia, and for greater accountability among individual educational institutions. The associated Green paper (Dawkins 1987) proposed a linkage between the funding of individual universities and their respective levels of performance in key areas, and the following White Paper policy statement cited student satisfaction as a key area of performance (Dawkins 1988).

To date, the main means of addressing student satisfaction have been via a standard survey instrument canvassing student perceptions about their higher education experiences - named the Course Experience Survey or CEQ for short (Ramsden 1999). It includes scales for good teaching and generic learning skills. It also contains an overall measure of student satisfaction (Ainley 2003). It is mailed out each year to the previous year's graduating students and the results are used to determine satisfaction scores for individual programs – such as Building and Construction Management Program at the University of New South Wales (McPherson 2005).

Many years since its initial implementation, the CEQ potentially influences Government funding of Universities (DEST 2003). For instance DEST (2003) in its policy statement "Our University – Backing Australia's Future" stated that "A Learning and Teaching Performance Fund of \$54.7 million in 2006, increasing to \$83.8 million in 2007 will be established to reward those institutions that best demonstrate excellence in learning and teaching." (DEST 2003:29). One means of measuring teaching performance is clearly the satisfaction that students derive from it. This is potentially an important issue for Building Construction Management educators because historically, construction management courses have not necessarily fared well in student satisfaction scores (AVCC, 2005).

Given the above, this research aims to cross sectionally implement the CEQ plus a battery of additional questions on Building Construction Management undergraduate students and to use the data to strategically assist curriculum development concerning student satisfaction.

THEORY AND CONSTRUCTS IN STUDENT SATISFACTION

In order to assist strategic curriculum development there is a need to not only understand and analyse CEQ scores, but a concurrent need to understand the theoretical underpinnings explaining influences on student satisfaction. Here, it is thought best to draw on the customer satisfaction literature.

A popular approach for evaluating customer satisfaction in service settings concerns the comparison of perceptions with expectations. This is applied to individual purchases or the consumption of individual services. For instance, critical evaluations of this approach have been conducted in settings such as restaurants (Cadotte, Woodruff & Jenkins 1987; Swan & Trawick 1981); health care (Oliver 1980); business consultancy (Patterson, Johnson & Spreng 1997); stock broking (Oliver & Desarbo 1988); car sales (Oliver & Swan 1989); and of particular note in this paper, higher education (Athiyaman 1997, 2001, 2002; Spreng & Mackoy 1996).

A variety of approaches have been used to explain the mental processes used to compare expectations and perceptions. In the current study, preference is given to Oliver's well known Disconfirmation of expectations model as shown in Figure 1 (1980, 1993). This model is acknowledged as dominating customer satisfaction research and marketing practice (Patterson & Johnson 1993; Spreng, MacKenzie & Olshavsky 1996). The model posits that an individual's recent expectations serve as an anchor to subsequent perceptions (judgements).

In the model, perceptions are measured in terms of their relative distance from the anchor point (Oliver 1980). As such, under one scenario perceptions are better than expectations. Under another, perceptions are worse than expectations. Under the third, perceptions are equal to expectations. The three variants differentiate between being very satisfied, neutral or very dissatisfied.

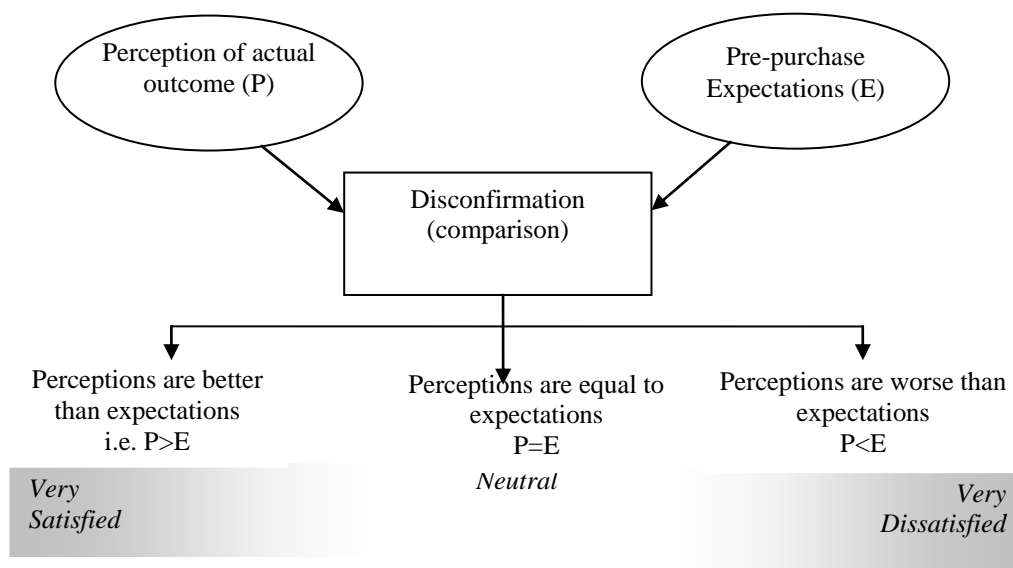


Figure 1 The Disconfirmation of Expectations model
(adapted from Oliver 1993)

All three variants take place via a theorised construct referred to as Disconfirmation. Within the Disconfirmation construct, comparison is thought to begin with a cognitive evaluation but eventually evolves into a more emotionally driven evaluation. The emphasis on emotions (affect) is well supported by many researchers such as Bitner (1990), Cadotte, Woodruff & Jenkins (1987), Cronin & Taylor (1992, 1994), Holbrook (1994), Parasuraman, Zeithaml and Berry (1988) and Patterson and Johnson (1993). Given the above, it is likely that student satisfaction will be positively associated with attributes that influence their emotional state.

The simplicity of the *Disconfirmation of expectations model* is appealing, however the long duration of a University degree study is quite different from day to day purchase situations. For instance, expectations will continually reform with each passing year, and this will have an evolving impact on satisfaction. As an example in the university education context, Athiyamam (1997) identifies that initial expectations may come from the likes of the university course handbook but importantly, Athiyaman (1997) also found that pre-enrolment attitudes of University students - which could include the aforementioned handbook - have little or no direct effect on their post enrolments attitudes of the course they have just completed.

On this basis, there is a strategic argument that Building / Construction Management Educators should focus on improving final year student satisfaction by manipulating expectations that students develop from their first three years of studies, then making sure their perceptions exceed these expectations when they undertake their final year.

This approach clearly aims to get the most out of the Federal Government funding criteria (if measured using the CEQ instrument which is administered after completion of the final year). Though this argument potentially suffers problems in dealing with poor satisfaction experienced in earlier years of the Program, there is a counter argument that any extra funds obtained via Federal Government incentives could be used to benefit all students, not just final year students.

Notwithstanding the above position, the focus on final years students is perhaps more complex than it first seems. For instance if a Building Construction Management Program is able to achieve high levels of satisfaction among first year students, there is likelihood that this will only lead to higher expectations for those students when going into second year. If this is so, then according to the model in Figure 1 the higher expectations will only make it harder to achieve student satisfaction at the end of the student's second year. If the process of increasing expectations continues, then satisfaction may become harder and harder to provide for students, right up to the point of reaching the targeted final year students. Clearly, this would be counter productive to the previous discussion about CEQ scores being linked to Government funding.

As an initial step in addressing this, it seems worthwhile to measure and map student satisfaction at each progressive stage in a Building Construction Management Program. This seems important for a number of reasons. Firstly, there is the need to avoid the downsides of having dissatisfied students in earlier years of study (such as decreased student retention rates). Secondly, because the experiences of third year students will likely become their expectations once they enter their final year. Thirdly, because setting the expectations of final year students may need to be undertaken in a way that shows sensitivity towards the effects it will have on earlier year of students.

Given this discussion, the current research poses the hypothesis:

H1 - Satisfaction (based on CEQ scores) will differ according to year of study.

POTENTIAL INFLUENCES ON STUDENT SATISFACTION

In conjunction with the previous hypotheses, it is important to know if there are any external factors - to the CEQ instrument - that influence satisfaction. Only by knowing this can strategically important factors be manipulated to best effect. For instance, Wiers-Jenssen et al. (2002) identify determinants of student satisfaction such as the social climate, aesthetic aspects of the physical infrastructure and the quality of services from administrative staff. Athiyaman (1997) identifies issues such as class size, level and difficulty of subject content, and student workload (1997).

Of the above factors, workload is of specific interest in the context of building/construction management study. For instance even though Athiyaman's (1997) comments are directed to study workload, many construction management students undertake paid work and study at the same time, sometimes doing both on an almost full time basis. This can obviously cause stress which is an acknowledged factor effecting student satisfaction (Abouserie, 1994; Cotton, Dollard & DeJonge, 2002). Workload stress for final year students may also be higher than the average as they are more likely to be working in a professional capacity rather than simply holding down a casual job.

Given this discussion, the current research poses the hypotheses:

H2 – Satisfaction (based on CEQ scores) will differ for those who are in paid work compared to those who are not.

RESEARCH METHOD

A survey questionnaire - based on the CEQ - was developed and used to measure students' satisfaction across all four years. A cross sectional correlational design was employed i.e. overall student satisfaction based on mean CEQ score acted as the dependent variable and work characteristics were used as independent variables.

A two-page questionnaire was designed for the study. The first section contained questions adapted from the standard Course Experience Questionnaire (CEQ) used for all universities in Australia. Only the thirteen mandatory questions from the CEQ instrument were employed; covering the six questions within the good teaching scale, the six within the generic skills scale and the one within The Overall Satisfaction Scale. These questions were scored on a 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree.

The remainder of the questionnaire was developed for the purposes of the current study and asked closed questions relating to current work status, number of hours in employment, difficulty balancing work and study, and some demographic questions.

There were 268 students enrolled in the Program in Semester 2, 2005. A total of 133 (104 Males and 25 females) students participated in the study given a response rate of 49.6%). Of these, 32 students (i.e. 39.5% of the enrolled number) were from the first year, 40 (85.1% of the enrolled students) from the second year, 20 (32.3% of the enrolled students) from the third year and 41 (52.6% of the enrolled students) from the fourth year. The mean age of the participants was 22 years. Participation in the study was voluntary and anonymous and there was no incentive given. The sample is considered to be representative of the population studied.

Questionnaires were handed out to the students during lecture time in October 2005. Students were given time during the lecture to complete the questionnaires, which were then collected, coded and analysed using statistical analysis software (SPSS).

ANALYSIS

The 13 Course Experience Questions (CEQ) were averaged to create a total satisfaction score. The sample did not differ according to gender, full-time status, or between local and international students, therefore, all analysis was carried out on the entire sample. The mean response for each of the 13 Course Experience Questions is shown in Table 1. Responses to the CEQ questions were averaged for each participant to form a CEQ scale to represent student satisfaction. The overall mean for this scale

was 3.18 and this was significantly different between the four years surveyed ($F(3,129) = 3.43$; $p = .019$).

Table 1. Mean response to Course Experience Questions

Question	Mean response
1. The staff put a lot of time into commenting on my work	3.00
2. The teaching staff normally gave helpful feedback on how I was going	3.00
3. The course helped me to develop my ability to work as a team member	3.33
4. The teaching staff of this course motivated me to do my best work	3.03
5. The course sharpened my analytic skills	3.23
6. My lecturers were extremely good at explaining things	3.06
7. The teaching staff worked hard to make their subjects interesting	3.11
8. The course developed my problem solving skills	3.27
9. The staff made a real effort to understand difficulties I was having	2.88
10. The course improved my skills in written communication	3.30
11. As a result of my course I feel confident about talking unfamiliar problems	3.23
12. My course helped me to develop the ability to plan my own work	3.57
13. Overall I was satisfied with the quality of this course	3.36

Bonferroni multiple comparisons were carried out (Uitenbroek, 1997). On this basis, the only significant difference between groups was between first and fourth year students (mean difference .42, $p=.045$), such that fourth year students reported a higher CEQ average than first year students.

Specifically, the questions in the course experience section which were significantly different between the years (using one-way analysis of variance (ANOVA)) were:

- CEQ 1. The staff put a lot of time into commenting on my work ($F(3, 129) = 2.92$, $p = .037$). Bonferroni multiple comparisons revealed a mean difference of .64 between the fourth and third year students, such that the fourth year students agreed that staff put time into commenting on their work more than the third year students agreed.

- CEQ 2. The teaching staff normally gave helpful feedback on how I was going ($F(3, 129) = 3.61$; $p = .015$). In this question, the significant difference was between the first and fourth year students, on average, fourth year students agreeing .62 more than first year students that they received helpful feedback.
- CEQ 5. The course sharpened my analytic skills ($F(3,129) = 4.64$; $p = .004$). Again fourth year students were in agreement more than first, and also second year students, with an average difference of .61 and .68 respectively.
- CEQ 9. The staff made a real effort to understand difficulties I was having ($F(3,129) = 2.616$; $p = .047$). First year students were the most dissatisfied for this question with a mean of 2.59; while fourth years were the most satisfied with a positive overall mean of 3.17). The mean difference was .58.

In addressing Hypothesis 2, Table 2 indicates that a total of 83 (62%) students reported to be in paid employment at the time of the study, and of these, 55 students were employed in a field related to their studies. Again taken from Table 2, the average number of hours worked each week was 27.14; however the number of hours worked each week differed according the year of program students were enrolled in, $F(3, 79) = 22.521$; $p < .001$, hours increasing with each year of study (see Table 2 for percentage of respondents working and mean hours worked for each program year).

Table 2. Details on paid employment workload

	Respondents engaged in paid employment	Average No. of hours worked per week
First Year	17%	14.43
Second Year	28%	19.04
Third Year	63%	26.33
Fourth Year	85%	38.27
Total	62%	27.14

An independent t-test revealed no significant difference in the average course satisfaction (CEQ response) between students who are in paid employment and students who are not working, $t(127) = -.1029$; $p = .31$. Further, there was no difference in course satisfaction between those working in a related job versus those in a job unrelated to the construction industry, $t(80) = .286$; $p = .77$.

When the mean for each CEQ question was compared for work status, there was a significant difference between those who were working and those who were not working for three of the questions. These were CEQ 3 (the course helped me to develop my ability to work as a team member), CEQ 11 (As a result of my course I feel confident about tackling unfamiliar problems) and CEQ 13 (Overall, I was satisfied with the quality of this course). In these three questions, those in paid employment had a higher score, that is, they were in more agreement with the question.

DISCUSSION

The findings from this study are exploratory and should be seen as contributing to the early stages of a more targeted research agenda. To this end, Hypothesis 1 (i.e. satisfaction will differ according to year of program) was proven by the research. For instance, first year students had the lowest level of satisfaction and this is perhaps explained by their lack of well-developed expectations as new entrants to both University study and the building industry. Surprisingly, fourth year students had the highest mean level of satisfaction. Despite this, it is apparent that clear and dependable patterns will only emerge by continually monitoring satisfaction of each year, to establish systematic trends.

Further to the above, some CEQ questions were more instrumental than others in differentiating student satisfaction levels across the different years of study. Again, monitoring is needed to determine if systematic trends emerge. In doing this, it may be beneficial to group questions in terms of the emotional drivers influencing responses. For instance, most of the questions creating significant differences between years were concerned with staff or teachers, i.e. understanding students' problems, providing feedback or commenting on their work. It may be that these emotively driven issues systematically differ according to the year of study and if so, could be managed accordingly.

Findings relating to Hypothesis 2 were surprising (i.e. satisfaction will differ for those in paid employment compared to those who are not). In simple terms, the hypothesis was not proven as there was no significant correlation between satisfaction and being

in paid working. Even so, certain anomalies arose concerning the finer points of the findings. For instance it appears that students who are working responded more positively to a number of the generic skills questions in the CEQ. It is not entirely clear why this is the case but it may be linked to other variables that are yet to be studied. For instance students may be enriched by work in a way that offers an unexpected source of support for their perceptions of University studies. Another possible reason for this may be that the students who were in paid work may have experienced the relevance of their studies to their work. If this proved to be the case, then strategic curriculum development could be adjusted to take this into account. Looking at the same issues from another perspective, it is notable that these 'self' orientated responses about generic skills, contrast with the previous emotionally driven responses about teachers. This adds support to the idea of analysing these groups of questions separately to better understand students' perceptions of satisfaction.

Given the previous discussion, the study indicates that student satisfaction is a complicated issue due to the multi-faceted and integrated nature of the factors involved. On the positive side, the findings allow a more targeted approach to curriculum improvement for student satisfaction. The next stage of research should undertake more statistical analysis to test specific relationships between targeted variables. Using this as a guide, it seems appropriate to undertake linked qualitative research that aims to map and join significant variables in a holistic way. In doing this, one of the original tenets of this paper concerned the manipulation of expectations in order to improve satisfaction. Though this should continue to be pursued, an alternative approach is to consider manipulating perceptions instead of expectations. For instance, one could introduce a new and unexpected dimension that is known to tap into student satisfaction, and use it as a kind of surprise factor – thus offering a different way of manipulating the Disconfirmation of expectations model. For reasons already discussed, this could be used to best affect on fourth year students, and may be based more on their ideal attributes of satisfaction rather than the normal things they have already come to expect in earlier years of study.

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