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Improving Specific Educational Outcomes of Accounting Students by Influencing Student Satisfaction

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Improving Specific Educational Outcomes of Accounting Students by Influencing Student Satisfaction

Abstract

In 2001 the School of Business and Informatics at a small Australian university established a working party to implement particular intervention strategies designed to improve specific educational outcomes in its accounting degree program. These outcomes were the three core areas of the Graduate Careers Council of Australia's Course Experience Questionnaire, (1) good teaching, (2) overall satisfaction, and (3) generic skills. Five areas were identified as areas for intervention, (1) the effective allocation of full-time staff, (2) the effective use of sessional staff, (3) greater commitment by sessional staff, (4) the introduction of common subject outlines, and (5) the proactive response to student evaluations. The results indicate a statistically significant improvement during 2003 in the three core areas: the Good Teaching Scale, the Overall Satisfaction Item, and the Generic Skills Scale.

Key words: Accounting education; Student performance; Student satisfaction; Intervention

Improving Specific Educational Outcomes of Accounting Students by Influencing Student Satisfaction

Introduction

This paper investigated the results of an intervention strategy implemented specifically to improve student outcomes, as measured by the three core outcome areas of the Graduate Careers Council of Australia (GCCA). The three core outcome areas of the GCCA are; Good Teaching, Generic Skills, and, Overall Satisfaction. The course chosen for the study was a small accounting programme. Five mechanisms were identified that, it was believed, would influenced the attitudes of students with respect to their teaching and learning experience and through these, improved satisfaction. In addition, a sixth mechanism was identifies that would provide a monitoring and accountability function. Further, considerable effort was given to identifying and responding to statements relating to teaching and learning within the student evaluation process. The research methodology involved some 'reverse engineering', of publicly available Australian Government data.

Background

In 2001 the School of Business and Informatics at the subject university established a working party from the accounting faculty to implement specific intervention strategies which were designed to improve specific student outcomes as measured by the Graduate Careers Council of Australia's Course Experience Questionnaire. While the university's performance measures for each of the three core outcome areas of the questionnaire – good teaching, generic skills and overall satisfaction – were comparable to, and in some areas exceeded, the national performance measures, it was felt that improvements could be made by improving students' satisfaction of their educational experience. The impetus for improved student satisfaction was a recognition that (i) student satisfaction is, in itself, an important educational outcome, (ii) increased student satisfaction may increase graduate support when they are practicing professionals, and (iii) that the improved satisfaction, reflected in various publicly available publications (such as the Australian Good Universities Guide) may entice students to the subject university.

The subject university is a small government funded public university operating in New South Wales, Australia. The accounting program consists of a Bachelor of Business (Accounting) which is accredited for professional membership by the professional accounting bodies in Australia. The student body consists mainly of school leavers with some international and mature age students. The accounting program is designed as a three year 'full-time' course, with little accommodation for part-time students or evening offerings. As with many accounting programs in Australia the first year is a common year for all Bachelor of Business students irrespective of their major.

The Project's Framework

To provide a rigorous base for the project the working party adopted the three primary components identified by Argyris (1970) as critical to an intervention process - valid and useful information, free choice, and internal commitment.

For the first component, valid and useful information, the project relied on the fact that the information and data gathered could be verified, could be openly gathered, could be tested in other disciplines, and could be used to effect change. The second component, free choice, centres on the options identified to affect change and the assurance that they were voluntary and not based on institutional coercion, and were proactive not reactive. With respect to the third component, internal commitment, the involvement of all accounting discipline staff and the School's Accounting Advisory Committee provided a high level of ownership and a feeling of collective commitment.

The structure also drew form the Total Quality Control literature in that it focused the accounting faculty on issues of pride and concern for the programme's reputation to provide the necessary incentives to ensure quality improvements. In particular three basic principles of quality improvement were adopted; creating a simple process, making the problems visible, and creating a climate for improvement (Stasey and McNair, 1990).

Purpose and Contribution

The purpose of the project was singular, to improve student outcomes, as measured by the three core values of the Graduate Careers Council of Australia Course Experience Questionnaire. This was to be achieved by improving the student's satisfaction with their educational experience.

The many educational reforms in Australia over the past two decades have identified excellent quality education as one of the major goals. Investigating the various aspects of student satisfaction can assist higher education in meeting that goal. Therefore, the contribution of the project was the achievement of improved outcomes through the identification and implementation of satisfaction improving techniques.

Aspects of Improving Student Satisfaction

Various aspects of improved student satisfaction through improvements in aspects of teaching and learning have been well documented (Anderson, Banks and Leary, 2002; Yazici, 2004; Helms, Alvis and Willis, 2005). The study by Anderson, Banks and Leary (2002) found that students experience higher levels of satisfaction with traditional on-campus classes as opposed to distance learning. Yazici's (2004) study concludes that collaboration between teaching staff improves student satisfaction through understanding and enhanced critical thinking and communication skills. In a similar study Helms, Alvis and Willis (2005) suggest that satisfaction can be improved through combining business subjects to stimulate student learning through a greater understanding of the inter-relationship between business subjects.

In other areas, Shaftel and Shaftel (2005) demonstrated that students' study skills and attitudes to learning improved significantly following a instructional intervention programme that redesigned an introductory accounting course. Others question the approach to teaching the introductory accounting subjects from either the 'traditional' approach with the emphasis on the accounting cycle or the 'users' approach with the emphases on analysis and interpretation of accounting information (Smigla, 1995). This suggests an acknowledgement that student satisfaction can be enhanced by matching teaching staff with academic offerings and the need for students to be engaged with the content of learning tasks in a way that would enable them to reach understanding (Ramsden, 1992). Putting this into context McInnis, James, and

McNaught (1995) reported that of the first-year students surveyed in 1994 barely half found their subjects interesting, slightly less than half said that staff were good at explaining things, only 53 percent believed that the academic who taught them was enthusiastic about the subject, and only 43 percent agreed they got satisfaction from studying the subject.

Improving satisfaction by continually having the material presented by enthusiastic and well resourced teaching staff is difficult enough, however, current trends towards the increased use of sessional academics make the task more onerous. Shah's (2003) study of workforce restructuring in the vocational education and training sector in Victoria (Australia) between 1993 and 1998 points to a significant and rapid increase in sessional positions. This trend has continued in Australia with a 48.3% increase in sessional staff between 1995 and 2004 (DEST, 2004).

The increasing body of literature from the United Kingdom and the United States of America suggests that this is an international trend, with many studies reflecting the dual concerns regarding the qualifications and experience of sessional staff (Charfauros and Tierne, 1999; Kift, 2002; Rothwell, 2002; Ramsden, 2003). In Australia the concern relating to qualifications resulted in the commissioning of a report into professional development for university teaching, which recommended that there should be an expectation that sessional staff undertake a minimal level of teaching preparation before being offered a contract for teaching (Dearn, Fraser and Ryan, 2002). With respect to experience, Dixon and Scott (2004) argued that the sessional staff members lack of teaching experience in student-centred practices coupled with the tenuous nature of their employment may impact on their willingness to experiment with innovative teaching strategies.

Not withstanding the issues above, sessional staff have been recognised for making a significant contribution to university teaching because of their diverse backgrounds, their career paths and their skills (Harvey, Fraser and Bowes, 2005). To reconcile the need for sessional staff with the issues of qualifications and experience, many universities are targeting sessional staff, as a strategic focus, to increase the quality of teaching and learning practices (Dixon and Scott, 2004; Harvey, Fraser and Bowes, 2005).

It is generally argued that one method of assessing student satisfaction is through the use of student evaluations (Boud, 1988; Entwistle and Tait, 1990; Burns, 1991; Chen and Hoshower, 1998; Green, Calderon and Reider, 1998). Irrespective of drivers, internal or external, universities have been forced to increase the emphasis on student evaluations by increasing the focus on teaching and learning. This has provided two outcomes, increased teaching effort by staff and higher levels of student satisfaction (Kanagaretnam, Mathieu and Thevaranjan, 2003). However, in order to improve student satisfaction through this mechanism, two practical issues for teaching staff are critical; the need for early and clear communication of expected learning outcomes, and the provision of timely and diagnostic feedback (McInnis and James and McNaught 1995; Thornton and Hornyak, 2003).

Empirically, the relationship between improved student satisfaction and student evaluation has been demonstrated in a variety of studies. Pearson and Beasley (1999) reported students feeling that they had gained a greater understanding throughout a course by progressive feedback and actions taken in response to students recommendations for positive change. Lindahl and Fanelli (2002) examined how student problems, reported in the student evaluations, were resolved through applying the principles of continuous improvement in the following course. This included directly confronting the students to clarify the problem, enlisting their aid in improving the course, and eliciting specific feedback, all of which substantially improved the level of student satisfaction. However, Green, Calderon and Rider (1998) found in their survey that many student evaluations included items that students were incapable of responding to, and 20 percent captured no data on the teaching and learning dimension. This lack of clear communication of expected learning objectives frustrated the students and greatly reduced their level of satisfaction.

Any review of the literature on improved student satisfaction and student evaluation would be incomplete without reference to student grades. Essentially, the argument is that student evaluations measure the level of students' 'happiness' with the course, which includes workloads and grades (Wallace and Wallace, 1998). This suggests that student satisfaction is an increasing function of their grades, and grades have a direct influence on students' utility function (Sabot and Wakeman-Linn (1991) It follows

therefore that students' utility is a decreasing function of their learning effort (Allgood, 2001). The argument continues, that to obtain a higher student rating academic staff have succumb to an expectation of a reduction in student knowledge and a manipulation of grades, which is evidenced by increased number of students receiving high distinctions and distinctions over the past 20 years (Cole, 1993; Dreyfuss, 1994; Beaver, 1997).

Conversely, research by Howard and Maxwell (1982) demonstrated that the relationship between grades and satisfaction may be caused by other variables, including student motivation and progress in the course, rather than contamination due to grading leniency. Their results indicate that there "is no evidence that a grade-influencing-satisfaction interpretation is more likely than its opposite, namely, a satisfaction-causing-grades one" (175). These findings were reinforced by Pike (1991) who, having examined the relationship between grades and satisfaction, found that satisfaction exerted a stronger influence on grades than grades on satisfaction.

However, it is contemporary research that provides a more reasoned insight into the relationship between student evaluations and student satisfaction. Umbach and Porter (2002), using survey data from more than 1,300 students, concluded that the characteristics of academic departments had a significant impact on student satisfaction. These characteristics included; student contact with faculty staff, research emphasis, and proportion of female undergraduates. In a similar study Wiers-Jenssen, Stensaker and Grogaard, (2002) deconstructed the determinants of student satisfaction, and suggested that factors to improve satisfaction included; academic and pedagogic quality of teaching, social climate, aesthetic aspects of the physical infrastructure, and the quality of services from the administrative staff.

Hypotheses

From the above the following hypotheses were developed:

Hypothesis 1

$H1_{Null}$ There would be no change in the core outcome of good teaching following the introduction of the intervention programme.

$H1_{Alt}$ There would be a change in the core outcome of good teaching following the introduction of the intervention programme.

Hypothesis 2

$H2_{Null}$ There would be no change in the core outcome of generic skills following the introduction of the intervention programme.

$H2_{Alt}$ There would be a change in the core outcome of generic skills following the introduction of the intervention programme.

Hypothesis 3

$H3_{Null}$ There would be no change in the core outcome of overall satisfaction following the introduction of the intervention programme.

$H3_{Alt}$ There would be a change in the core outcome of overall satisfaction following the introduction of the intervention programme.

Hypothesis 4

$H4_{Null}$ There would be no change in the student grades following the introduction of the intervention programme.

$H4_{Alt}$ There would be a change in the student grades following the introduction of the intervention programme.

Identifying the Improvement Mechanisms

Given the significant investment, in terms of both dedicated resources and commitment to continuous quality improvement, needed to achieve the objective of increased student satisfaction, the Accounting Disciplines' focus was on those areas that would result in an improved relationship between students and academics and through this would enhance the learning experience (Hodgson, 1984). The first step was to take an inventory of the mechanisms available within the Accounting Discipline that could be used to improve student satisfaction without imposing additional cost on the School, Faculty, or Student. The areas identified by the inventory were: (1) the effective allocation of full-time staff to primary accounting subjects, (2) the effective use of sessional staff, (3) greater commitment by sessional staff through improved communication and involvement, (4) the introduction of common subject outlines, and (5) a proactive response to student evaluation feedback. In addition, (6) the School's Accounting Advisory Committee was used to make the measures visible and provide a mentoring an accountability measure. These mechanisms and their expected outcomes are shown in Table 1

[Insert Table 1 here]

Implementing the Mechanism

Effective allocation of full-time staff

Prior to 2002, accounting academic staff were allowed, to some degree, to select the subjects and teaching times that suited their interests and personal preferences. It had become apparent that this self-selection had, on some occasions, resulted in a misalignment of abilities and teaching styles. The primary task was to identify the academic staff member best suited to teach the first year fundamental accounting subject. This was an acknowledgement of the need for students to be engaged with the content of learning tasks in a way that would enable them to reach understanding (see McInnis, James, and McNaught, 1995; Ramsden, 1992). Also, as the first year of the degree is common year for all students prior to selecting their major, it was a strategy designed to encourage students to undertake the accounting major.

Further, past practice had full-time staff teaching up to three subjects from different accounting sub-disciplines (financial accounting, management accounting, company accounting and auditing). This resulted in some staff teaching in areas outside their discipline specialisation. While this mismatch did not result in the poor level of teaching suggested by some academic researchers (see Feldman, 1976; Eble, 1988; Entwistle and Tatt, 1990), it was reflected in both staff and student dissatisfaction. Staff found that the time needed to prepare for subjects outside their specialisation reduced their time available for research and resulted in a less than adequate presentation to the students. Students reported that some teaching staff appeared less than interested and lacked the depth of knowledge to engage in a meaningful discussion. This reduced student satisfaction was reflected in the student evaluation reports.

As a result it was decided that, from 2002, full-time accounting academics would teach in no more than two subjects each semester, one consistent with the staff member's specialisation and the other chosen by the staff member. The result was higher levels of staff satisfaction and a belief they were improving the quality of student learning. It also impacted on the responsibility of sessional staff, as some were now required to take on the task of Lecturer-in-Charge of a subject in their discipline

area. From the students' perspective the evaluation reports indicated that several key principles of effective teaching had been encapsulated in this decision. These included improved interest and explanation; intellectual challenge and independence; active engagement: and, understanding (for greater detail of these and other key principles of effective teaching (see Whitehead, 1967; Brown, 1978; Johnson, Maruyama, Johnson, Nelson and Skon, 1981; Tang, 1990; Ramsden, 1992).

The effective use of sessional staff

The use of sessional or part-time-academic staff in the teaching of accounting and other related discipline areas, has been a mechanism used for the management of high demand and specialist subjects for decades. The advantages of relevant industry and professional experience, together with the acknowledged disadvantages of lack of student contact and supervision problems, have been well documented (Churchman, 2002). Within the Bachelor of Business (Accounting) program in 2001 there were ten dedicated accounting units (including two specialist electives) and three full-time accounting academics.

From the above it can be seen that a substantial number of sessional accounting staff had to be used to teach accounting and related subjects. Prior to 2001, the appointment of sessional staff was essentially based on grace and favour with limited attention to academic and professional qualifications or industry/commercial and teaching experience. Primarily this was due to the competition for sessional staff between the three major metropolitan universities.

During 2001 the Course Co-ordinator for the Bachelor of Business (Accounting), together with the Assistant Head of School responsible for the employment of sessional staff, began rebuilding the academic profile of the sessional accounting academics. Immediate priorities were seen as obtaining staff with relevant industry and professional experience together with demonstrated teaching experience in higher education. To achieve this, current full time accounting staff were asked to provide a short list of three or four academic colleagues they felt they could work with and who would add value to the course. Essentially the sessional accounting academics for 2002 were 'head-hunted'.

For 2003 the priority focused on improvements to academic and professional qualifications. While the 2002 sessional staff all had an undergraduate qualification in accounting, it was felt that a postgraduate degree, together with membership of one of the two Australian professional accounting bodies would add a new dimension to the quality aspect of the task. To assist with this, advertisements were placed calling for expressions of interest and the short listed applicants were interviewed informally by at least one of the three full time staff members. Thus the starting point to improve the satisfaction of students and through this the accounting program, was the improved academic and professional qualifications of sessional accounting staff together with a balance of teaching and industry experience that would prove relevant to accounting students.

Greater commitment by sessional staff

Following the review of the effective use of sessional staff, which included an evaluation of both academic and professional qualifications and teaching experience, some were appointed as Lecture-in-Charge of main stream specialist accounting subjects. In order to avoid problems encountered in the past, and at other universities, relating to an ongoing commitment to students, it was decided to encourage sessional staff to be more proactive by involving them in School activities where they could help identify and resolve specific issues. This was achieved by modifying the function of the School's Accounting and Finance Research Group.

The Accounting and Finance Research Group had been introduced in 2002 as an informal vehicle to encourage the research output of the accounting academics, and where appropriate, cross discipline research. Because of its informal nature, matters other than research were often discussed, including teaching methods and strategies, lectures, tutorials, and various aspects of academic administration.

It was decided that sessional staff, particularly those appointed as Lecturer-in-Charge, be invited to attend. This resulted in a positive reaction from sessional staff with regular attendance at meetings. It also provided a non-threatening environment where controversial issues such as the Course Co-ordinators expectations relating to student consultation times, involvement in student evaluation, student discipline, examination preparation, marking, the input of student results, and other administrative tasks could

be discussed. In addition, it provided sessional staff who aspired to full-time academic positions, to involve themselves in various research projects. The outcome of these informal meetings was greater sessional staff involvement in student evaluation exercises, where previously this was voluntary and few had participated. Also, there was agreement that the feedback would be discussed and the aggregate made available within the Accounting Discipline.

The introduction of common subject outlines

For some time prior to 2002, the design and content of subject outlines was a matter of choice by the Lecturer-in-Charge. However, from 2002 it was agreed that a common format be adopted that would provide students with clear goals, details of appropriate assessment, and an undertaking of timely and constructive feedback. Previously academic staff had expressed disquiet about inconsistencies with respect to assessment tasks, including the excessive use of multiple choice and assessment based on attendance. It was agreed that a common format would provide consistency across a number of properties that have been identified with good teaching. These included the use and type of assessment methods, a requirement for giving timely and quality feedback on student work, and a commitment to making it absolutely clear what has to be understood and why (Ramsden, 1992). In addition, subject outlines for subjects where the Lecturer-in-Charge was sessional, needed to be reviewed by the Course Co-ordinator. This approach proved quite successful, and from 2005 has been adopted as policy by Faculty for subject outlines across all disciplines.

Proactive response to student evaluations

The subject University, like almost every university in Australia uses student evaluation surveys as part of its strategy to improve the quality of teaching and learning through a reflective approach to quality enhancement (see Biggs, 2003). In the late 1990s, the School adopted a cluster of twenty compulsory statements that would be included in each evaluation to gauge specific attributes considered appropriate to the mission of the School. All teaching staff, full-time and sessional, were requested to subject themselves to evaluation, although this was not mandatory within the School.

In the case of the Accounting Discipline all staff, full-time and sessional, agreed that they would participate and the evaluations would be analysed and openly discussed. Adopting the view modified the evaluation process from a focus on evaluating staff performance to a focus of identifying and resolving problems of concern to students. The accounting staff agreed on four major approaches relating to student feedback. First, if any of the evaluation statements scored greater than 10% in the categories disagree/strongly disagree the specific category would be investigated, and second, all written comments would be given the highest priority for investigation and correction or emulation. Third, additional feedback would be provided to the students through a report presented and discussed in the first tutorial of the particular subject in the incoming semester. Further a yearly comparison, by subject, would be provided to the School's Accounting Advisory Committee.

While the Faculty had agreed on a common set of twenty statements, the Accounting Discipline agreed to focus its efforts on those statements which related specifically to teaching and learning and focused on seven key aspects; organisation, presentation, content, assessment, lecturer's characteristics and ethical behaviour. The nine statements singled out are shown as Table 2.

[Insert Table 2 here]

Formal and informal feedback from students, suggest that the openness of the staff, together with information provided by them during their first tutorial on actions that had been taken to address their concerns, was appreciated by the student body. Also, it has allowed students to evaluate the importance teaching staff placed on student issues or dissatisfaction, and has improved their level of satisfaction knowing that their concerns are taken seriously (see McInnis and James and McNaught 1995; Thornton and Hornyak, 2003;Pearson and Beasley,1999; Lindahl and Fanelli, 2002)

Involvement of the School's Accounting Advisory Committee

The decision to involve the School's Accounting Advisory Committee was seen as both a proactive and a defensive strategy. The Accounting Advisory Committee's role is to monitor the progress of the accounting program to ensure that it is meeting the needs of the key stakeholders, including the accounting profession. It is composed of

accounting practitioners, representatives from commerce and industry, a representative from the professional accounting bodies, a senior accounting academic from another university, a student representative, and academic staff from the Accounting Discipline.

By involving the Advisory Committee, the Accounting Discipline publicly set progressive goals and deadlines to achieve the improvements considered necessary to raise the level of student satisfaction. It also provided a degree of accountability and introduced a control mechanism, should the Accounting Advisory Committee consider that the parameters of the improvement program had been exceeded. The Committee also acted as an independent body to advise and monitor the changes. In addition it provided a vehicle which could pursue politically sensitive issues through the School or Faculty, should the need have arisen.

Measuring Improved Student Satisfaction

In order to assess any improvement in student satisfaction, three measures were used, (i) changes in the responses by students to the evaluation of specific accounting subjects, (ii) final year students satisfaction ratings from the graduate Course Experience Questionnaires, and (iii) a comparison of the grades obtained in the three final year subjects of the accounting major. The changes in the responses to student evaluations relate to the 2003 academic year. For the purpose of the project the subjects are identified as subjects A, B, and C.

Table 3 shows the percentage of students in the three final year accounting subjects who agreed/strongly agreed with the nine statements specifically related to teaching and learning. These statements were extracted from the twenty statements used by the Faculty.

[Insert Table 3 here]

The results from Table 3 suggest that by concentrating on the student concerns about perceived deficiencies in teaching and learning, satisfaction is improved in these areas. The responses reflect the changes from 2001 to 2003, and it is argued that this

improvement is reflected in the improved outcome in the Course Experience Questionnaire data, although no direct causal link has been established.

The Course Experience Questionnaire is a composite indicator, collected by the Commonwealth Government through the Department of Employment, Science and Training (DEST), and based on student perceptions of teaching quality generalised across a particular academic discipline or field of study. It is represented by an average rating on various aspects of teaching performance and includes three distinct but related core dimensions of teaching performance, specifically, a Good Teaching Scale, a Generic Skills Scale, and an Overall Satisfaction Item (DEET, 1991).

Table 4 shows the changes in each of the three core areas from 2000 to 2004 at the 'agree and strongly agree' level, including the dramatic improvement in 2003. The subject University mean for good teaching increased from 31.6 in 2000 to 60.2 in 2003, dropping to 32.7 in 2004. Similar improvements can be seen in generic skills, 68.1 in 2000 to 75.4 in 2003 and 41.7 in 2004. Likewise, overall satisfaction rose from 70.3 in 2000 to 82.6 in 2004 and down to 59.2 in 2004.

[Insert Table 4 here]

The results using the same data set but restricting it to responses at the 'strongly agree' level are shown in Table 5. At this level the mean for good teaching increased from 5.9 in 2000 to 16.7 in 2003, dropping to 6.8 in 2004. Similar improvements can be observed in generic skills, 13.1 in 2000 to 23.2 in 2003 and down to 17.2 in 2004. Likewise, overall satisfaction rose from 16.2 in 2000 to 34.8 in 2004 and down to 15.9 in 2004.

[Insert Table 5 here]

To test for any improvement in grades the standard normal distribution (Z score) was used to test for differences between the means. The grades obtained in the three final year subjects of the accounting major for 2002, 2003, and 2004 were used to test the differences between the means of 2002 and 2003, and 2003 and 2004, the period where changes would be expected. In addition to comparison between years of the

aggregate scores a comparison was carried out between years for specific levels of grade; distinction, credit and pass.

Analysis of the Data

The statistics reported in this paper are those publicly available from the Graduate Careers Council of Australia and presented on the Australian Vice-Chancellors Committee website. Therefore, it is the final statistic, not the raw data that is being analysed. The mean displayed at both the university level and the national level is a linear transformation of the Likert scale percentages where 'strongly disagree' (SD) = - 50, 'disagree' (D) = -100, 'undecided' (U) = 0, 'agree' (A) = + 100, and 'strongly agree' (SD) = + 50.

To test for homogeneity of variance Hartley's F_{MAX} procedure was used. The resulting F_{MAX} statistic is displayed in Tables 6a, 6b, and 6c. Using a level of significance of .05 the hypothesis of equality of group variances will be rejected if the computed F_{MAX} exceeds the upper-tail critical value of Hartley's F_{MAX} distribution based upon c and $(\bar{n}-1)$ degrees of freedom. In this case $c = 2$, and $(\bar{n}-1) = 1925$ for GTS, 1925 for GSS, and 1953 for OSI. The critical value of F_{MAX} at the .05 level of significance is 1.00. As the F statistic is greater than 1.00 for each component the nul hypothesis of equal variances is rejected.

The calculation of Hartley's F_{MAX} suggests that the variances are not equal. To test for the difference between the means of two independent populations having unequal variances Cochran's test was adopted. In this test separate variance estimates are included in the test statistic while the critical value of t is obtained by weighting the critical value of each sample by its variance of the mean (S^2/n). The hypothesis that there is no difference is rejected where the test statistic is greater than the critical value of t. The t statistic was calculated as the university mean minus the national mean divided by the square root of the university standard deviation squared divided by the university population plus the square root of the national standard deviation squared divided by the national population. For each year the population of the components (GTS, GSS, and OSI) at the university level was consistent, however,

there were some variations between the populations of each component at the national level.

The *t* statistic suggest that the change in 2003 for the GTS is significant at the 1% level (*t* statistic of 4.1948 and a critical value of *t* of 2.422), for the GSS significant at the 5% level (*t* statistic of 2.5144 and a critical value of *t* of 2.448), and for the OSI significant at the 10% level (*t* statistic of 1.8382 and a critical value of *t* of 2.447) This data, together with the critical value of *t* at a significance level of .05, is displayed in Tables 6 a, b, and c.

Given the above the null hypotheses of no change in the good teaching (hypothesis 1), the generis skills score (hypothesis 2), and the overall satisfaction index (hypothesis 3) are rejected and the alternative hypotheses accepted.

[Insert Table 6 a here]

[Insert Table 6 b here]

[Insert Table 6 c here]

The results of the test for improvement in grades were mixed (Table 7). At the aggregate only subject 1 and subject 3 exhibited a significant change at the 1% level. Subject 1 during 2002/2003 and subject 3 during 2003/2004, the period of expected improved student performance indicated in tables 6 a, b, and c. Within subjects, at the specific grades of distinction, credit and pass, subjects 2 and 3 both exhibited a significant change at the distinction grade during 2003/2004. No significant change was observed at the credit grade in any of the three subjects. At the pass grade a significant change was observed in subject 2 during 2002/2003.

[Insert Table 7 here]

While the results were mixed the significant changes in the grades reported for subject 3 in 2003/2004 does provide some support for the argument that improved student satisfaction can translate into improved student grades. The fact that this is not evidenced in subjects 1 and 2 during the same period could be a reflection of many variables, including the perceived difficulty of the subject, the subject's popularity,

and impact of teaching staff during this period. However, this aside, there was a significant difference in the specific level of 'distinction' during the period 2003/2004 for subject 2.

Conclusion

Summary

The purpose of this paper was to investigate the results of an intervention strategy by members of the Accounting Discipline within a small Australian University to improve the student outcomes in the Bachelor of Business (Accounting) program by improving student satisfaction as measured by the three core outcome areas of the GCCA. Five areas were targeted, with the expectation of improving student satisfaction and through this the quality of the teaching and learning experiences of students within the program. It is argued that improvements in the effective use of sessional staff, the effective allocation of full-time staff, the proactive response to student evaluations, greater commitment by sessional staff and the introduction and use of common subject outlines, resulted in improvements in the three key performance indicators of student satisfaction: good teaching. Generic skills, and overall satisfaction.

The paper argues that improved levels of satisfaction reflected in the Subject Evaluation Program (Table 3), were driven by improvements in the five areas identified as necessary to improve student satisfaction (Table 1). Further, it is concluded that the significant changes in the three core components of the Course Experience Questionnaire in 2003 (Table 4), good teaching, generic skills, and overall satisfaction, resulted from improvements identified through analysis of the nine statements of teaching and learning (Table 2). Further, this improvement in 2003 is statistically significant at each component level (Tables 6 a, b, and c). These results support the findings of Lindahl and Fanelli (2002), Thornton and Hornyate (2003), Dixon and Scott (2004), Yazici (2004), Harvey, Faser and Bowes (2005), and Shaftel and Shaftel (2005) with respect to improving satisfaction through greater collaboration between teaching staff; matching staff to areas of interest/expertise; improved teaching preparation by sessional staff; and, clear communication of expected learning outcomes and timely and diagnostic feedback through student evaluations.

With respect to improved grades the overall results were mixed, although subject 3 exhibited a significant change at the 1% level during 2003/2004 at the aggregate level and at the specific level of 'distinction', which corresponded with the significant change in the GCCA core outcome measures, in particular the improved generic skills. A similar change was observed with subject 2, but only at the specific level of 'distinction'. Initially, this may provide some support to the findings of Pike (1991) who found that satisfaction extended a strong influence of grades. However, there is nothing to indicate a causal relationship between the specific implementation mechanisms used and the student's performance. At best, it could support the findings of Howard and Maxwell (1982), Umbach and Porter (2002) and Wiers-Jenssen, Stensaker and Grogaard (202) that improved grades probably result from other variables, including student motivation, progress in the course, and characteristics of the academic department, embracing the academic and pedagogic quality of teaching.

While the gains made in 2003 appear to be lost in 2004 and dropped below the national mean for each component as measured by the three core outcome areas of the GCCA (Table 4) a different result is observed at the disaggregated level of 'strongly agree'. Again at this level of aggregation there was a drop from the 2003 results, however in this case the results for each category were above the national mean and also above the university mean of 2002 (Table 5). The drop from the 2003 level may have two possible explanations, first, the dramatic improvement obtained in 2003 was too great to maintain in the long-run, and second, such improvements in student outcomes need to be continuously and consistently reinforced and maintained in order to institutionalise the process of ongoing change and learning.

Limitations

The findings of the study may have been affected by several factors that could limit its efficacy. First, the inability to obtain the prime data from either the CCCA or the AVCC resulted in the analysis being an exercise in reverse statistical engineering. While this did not present insurmountable problems it is possible that some relevant data was missing or interpreted incorrectly. Second, the student cohort reflected in the GCCA data only represents the students responding to the course experience questionnaire, while this number is consistent across the period 2002 to 2004; it only

represents about 60 percent of the graduating students. Third, the analysis of grades was limited to 2002/2003 and 2003/2004. This was due to the unavailability of data, together with a change pf policy in 2001 on how the data would be recorded.

Conclusion

Overall, the results support the findings of Umbach and Porter (2002) and Wiers-Jenssen, Stensaker and Grogaard (200) that improved student satisfaction has no singular cause. Improved satisfaction can be obtained through a variety of influences including; student contact with faculty staff, the perceived quality of teaching, social climate, and aesthetic aspects of the physical infrastructure. On balance, it would appear that the intervention project was successful in improving student satisfaction as measured by the core outcome measures of the GCCA as it incorporated many of these factors. Therefore, the intervention mechanism or satisfaction motivators chosen and implemented had a positive impact.

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Table 1

Mechanisms Expected to Improve Student Satisfaction

Priority	Mechanism	Expected Outcome
1	Effective Allocation of Full-time Staff	Matching staff to students' needs
2	Effective Use of Sessional Staff	Improved academic and professional qualifications
3	Greater Commitment by Sessional Staff	Increased concern and respect for students
4	Introduction of Common Subject Outlines	Clear subject goals and requirements
5	Proactive Response to Student Evaluations	Active engagement and feedback
6	Involvement of the School's Accounting Advisory Committee	Transparency, support and accountability

Table 2

Statements Relating Specifically to Teaching and Learning

- My experience in this subject has contributed to my development as an independent learner.
- My experience in this subject has enhanced my ability to solve problems.
- The tutorials, workshops, seminars contributed constructively to my learning in this subject.
- The material presented in each class was conveyed clearly and logically.
- Completing subject activities was a useful learning strategy for me.
- I believe that the content presented in this subject reflected the declared outcomes/objectives.
- Completing assessment tasks contributed to my learning in this subject.
- The knowledge and teaching style of the lecturer promoted interest and learning in this subject
- This subject has contributed to my understanding of ethical issues relevant to the subject area.

Table 3

Percentage of Students in Final Year Accounting Subjects who Agreed/Strongly Agreed with the Focus Statements:

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Subject A									
2001	78.3	73.5	69.5	70.4	75.3	76.8	73.4	64.7	56.1
2002	80.9	86.8	83.8	80.9	85.3	78.0	82.3	83.9	61.8
2003	89.7	91.4	88.6	89.5	92.3	88.7	92.4	93.4	78.3
Subject B									
2001	84.8	66.6	65.8	82.6	78.3	73.4	84.8	84.8	58.7
2002	91.8	87.1	93.6	82.3	86.9	87.1	90.4	74.2	69.3
2003	94.7	94.7	84.2	94.7	97.4	86.8	97.3	84.3	76.3
Subject C									
2001	89.5	74.7	67.1	80.0	80.0	68.4	88.3	60.0	68.0
2002	91.2	70.6	70.5	97.1	82.3	73.5	79.5	97.0	76.6
2003	92.3	75.7	81.3	96.2	94.5	89.6	90.1	91.4	81.3

Table 4

Course Experience Questionnaire
Changes at the Agree and Strongly Agree Level, 2000-2004

Component	**2004**	**2003**	**2002**	**2001**	**2000**
Good Teaching Scale					
• University – GTS Mean	32.7	60.2	30.0	36.2	31.6
• National GTS Mean	35.2	34.5	34.1	31.8	30.1
Generic Skills Scale					
• University – GSS Mean	41.7	75.4	50.9	59.8	68.1
• National GSS Mean	44.4	58.5	58.2	56.0	57.5
Overall Satisfaction Item					
• University – OSI Mean	59.2	82.6	65.0	65.5	70.3
• National OSI Mean	64.8	67.1	68.3	66.3	67.2

Source: Australian Vice-Chancellors' Committee

Table 5

Course Experience Questionnaire
Changes at the Strongly Agree Level, 2000-2004

Component	**2004**	**2003**	**2002**	**2001**	**2000**
Good Teaching Scale					
• University – GTS Mean	6.8	16.7	5.8	9.8	5.9
• National GTS Mean	5.5	5.4	5.6	5.0	4.9
Generic Skills Scale					
• University – GSS Mean	17.2	23.2	9.2	13.2	13.1
• National GSS Mean	13.1	12.8	12.9	11.4	12.6
Overall Satisfaction Item					
• University – OSI Mean	15.9	34.8	15.0	20.7	16.2
• National OSI Mean	13.5	14.7	14.6	13.9	15.0

Source: Australian Vice-Chancellors' Committee

Table 6 a

Comparison of University to National – 2000-2004					
Component	**2004**	**2003**	**2002**	**2001**	**2000**
Good Teaching Scale					
• University – Mean	8.3	34.8	4.6	8.9	4.1
• National – Mean	7.2	6.1	5.0	1.1	0.9
• University – SD	34.6	32.7	30.6	36.7	35.2
• National – SD	34.3	34.9	35.0	36.3	36.5
• University *n*	27	23	20	20	37
• National *n*	3681	3828	3601	3371	4025
• *F* Statistic	1.0176	1.1391	1.3083	1.0333	1.0752
• *t* statistic	0.1646	4.1948***	0.0582	1.1376	0.5523
• Critical value of *t*	2.446	2.422	2.448	2.448	2.448

*** Significant at the 1% level
$F_{2,\infty} = 1.00$. Therefore variances are unequal, reject the hypothesis of equality
t statistic ≥ critical value of *t* reject the hypothesis of no difference

Source: Australian Vice-Chancellors' Committee

Table 6 b

Comparison of University to National – 2000-2004					
Component	**2004**	**2003**	**2002**	**2001**	**2000**
Generic Skills Scale					
• University – Mean	24.4	46.0	23.8	29.3	36.7
• National – Mean	27.4	28.7	28.5	25.3	27.2
• University – SD	28.2	32.9	29.3	31.7	29.0
• National – SD	33.5	32.6	31.8	32.6	32.4
• University *n*	27	23	20	20	37
• National *n*	3674	3829	3605	3378	4025
• *F* Statistic	1.4665	1.0189	1.1779	1.0576	1.242
• *t* statistic	0.5499	2.5144**	0.7150	0.6765	1.9813*
• Critical value of *t*	2.448	2.448	2.448	2.448	2.448

** Significant at the 5% level
$F_{2,\infty} = 1.00$. Therefore variances are unequal, reject the hypothesis of equality
t statistic ≥ critical value of *t* reject the hypothesis of no difference

Source: Australian Vice-Chancellors' Committee

Table 6 c

Comparison of University to National – 2000-2004					
Component	**2004**	**2003**	**2002**	**2001**	**2000**
Overall Satisfaction Scale					
• University – Mean	35.2	54.3	35.0	37.9	36.5
• National – Mean	34.8	36.1	37.4	35.1	36.0
• University – SD	43.4	47.5	43.2	47.5	46.6
• National – SD	42.8	42.6	41.0	42.6	43.3
• University *n*	27	23	20	20	37
• National *n*	3680	3885	3602	3364	4025
• *F* Statistic	1.0282	1.2433	1.1102	1.2433	1.1584
• *t* statistic	0.1670	1.8332*	0.2582	0.5197	0.0650
• Critical value of *t*	2.448	2.447	2.448	2.448	2.461

* Significant at the 10% level

$F_{2,\infty} = 1.00$. Therefore variances are unequal, reject the hypothesis of equality

t statistic ≥ critical value of *t* reject the hypothesis of no difference

Source: Australian Vice-Chancellors' Committee

Table 7

Comparison of Grades – Z scores Between Years					
		Aggregate	**Distinction**	**Credit**	**Pass**
Subject 1 –	2002/2003	3.13***	1.04	0.04	1.55
	2003/2004	1.22	0.65	0.86	1.20
Subject 2 –	2002/2003	1.55	1.33	0.39	7.26***
	2003/2004	0.44	3.32***	0.34	0.42
Subject 3 –	2002/2003	0.11		0.13	0.30
	2003/2004	2.68***	2.62***	0.10	0.02

***Significant at the 1% level