AUSTRALIAN LEARNING & TEACHING COUNCIL

Promoting excellence in higher education

The Whole of University Experience: Retention, attrition, learning and personal support interventions during undergraduate business studies

Final Report 2011

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Acronyms

ABDC	Australian Business Deans Council
ABDC T & L	Australian Business Deans Council Teaching and Learning Network
ALTC	Australian Learning and Teaching Council
ANZAM	Australia and New Zealand Academy of Management
ANZSSA	Australia and New Zealand Student Services Association
ATN	Australian Technology Network
AUQA	Australian Universities Quality Agency
DEEWR	Department of Employment, Education and Workplace Relations
DEST	Department of Education science and Training
Go8	Group of Eight universities
HERDSA	Higher Education Research and Development Society of Australasia
KPI	Key performance indicator
T & L	Teaching and Learning
WoUE	Whole of University Experience

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1.0 Executive summary

The Whole of University Experience (WoUE) project examined factors underpinning attrition in the first, second and third year of a business degree at six Australian universities – Griffith University, Monash University, Murdoch University, University of South Australia, University of Southern Queensland, and University of the Sunshine Coast. A questionnaire completed in 2008, 2009, and 2010 by a total of 7,486 students enabled gathering of data relating to demographics; students' experience of university; their use and perceptions of the usefulness of student support interventions; open-ended comments about the best and worst aspects of the university experience; and aspects in need of improvement. In each year a small number of students were also interviewed for the purpose of fleshing out the survey data and exploring the interactions between various factors associated with attrition.

Overall, the data strongly indicates that factors related to attrition are generally university-specific and reflect both student characteristics and their responses to the specific institutional culture and environment. The only attrition triggers which span most universities and most years of study are 'lack of a clear reason for being at university' and 'the feeling of having insufficient ability to succeed at university'.

Correlation analysis relating 70 statements probing students' experience of university to the strength of their intention to leave before completing a degree revealed notable differentiation in attrition triggers on the basis of year of study. Follow-up analysis in one university indicated further differentiation in the triggers for attrition, semester by semester. It seems that many different factors underpin attrition decisions in any one institution and for any one individual, for whom attrition appears to be the result of the aggregation of diverse factors generally followed by 'the straw that broke the camel's back'.

When responses are grouped by demographic variables some difference in the factors associated with domestic and international student attrition is apparent, but no difference in the factors associated with their sense of satisfaction or belonging is obvious. In the responses of international and domestic students to issues of teaching quality, differences primarily related to expectations regarding teaching staff approachability, availability and helpfulness. For students enrolled part-time or full-time different factors underpin attrition, and attrition triggers also differ on the basis of time spent on campus and average grades. Preliminary analysis suggests that having to take a loan or engage in full-time work to fund studies is a greater attrition risk factor in most universities than is the receipt of Centrelink benefits (which may be seen as a proxy indicator for low socio-economic status).

Analysis of responses to questions about the use and usefulness of student support interventions indicates that, in general, when students use personal support interventions these are mostly seen as very useful. However, data also indicate that many, and often the majority of, students have either not used or are not aware of the support services available.

Practically, the project has delivered, and will continue to deliver, significant value to the higher education sector. On the basis of evidence from the project, partner universities have begun addressing high-value student retention issues and it is expected that this evidence will continue to influence institutional decision-making for several years beyond the life of the project. Dissemination activities external to partner universities, including publication of five journal articles and numerous workshops or presentations, have assisted staff in other universities to reflect upon issues critical to student retention in both first year and beyond. Further publication

outcomes are expected. Critically, as indicated in the independent project evaluation, “the project has directed much needed attention to factors associated with attrition in later years of the student experience (second and third years) … facilitated discussion around frameworks for evidence-based institutional responses that constitute effective interventions … [and] reinforced the need for institutions to collect their own data on the student experience to inform individual institutional responses and interventions”.

2.0 Overview of the project

2.1 Introduction

In recent years, attrition of first year undergraduate students has been identified as an issue of major concern for universities. The most recent comparative figures available from the Department of Employment, Education and Workplace Relations (DEEWR) indicate that, in 2007, state averages for attrition of first year bachelor degree students ranged from 13.5 per cent to 31.4 per cent, while individual institutions recorded attrition ranging from 7.4 per cent to 31.5 per cent (DEEWR 2007). Research conducted with Australian students during the period 1994–2004 has provided detailed data on the university experience of first year students and factors influencing retention and attrition in the first year (Krause, Hartley, James & McInnis 2005).

With the focus upon the first year experience, relatively little attention has been paid to attrition and retention in Australian universities in subsequent years. Department of Education Science and Training (DEST) (2004) figures indicate that, nationally in 2002, attrition amongst non-commencing students, i.e. second and third year undergraduate students, ranged from 6 per cent to 25 per cent. Despite the obviously significant number of later year withdrawals from university study in Australia, regular data relating to such withdrawals are not published and very little is known about the factors influencing these withdrawals. It is clear, however, that as a consequence of attrition across the full period of university degree study, many Australian universities graduate fewer than 60 per cent of the students who commenced first year study.

In concert with the focus on first year retention and attrition, over the past decade numerous learning support and personal support interventions specifically designed to enhance the first year experience in both Australia and overseas have been funded, trialled and reported in journals, e.g. Campbell & Campbell 1999; Cox et al. 2005; Glaser et al. 2006; Goodman & Pascarella 2006. An additional body of literature developed over this time in both Australia and overseas describes learning support and personal support interventions designed to address identified problems in the classroom or identified problems in students' capacity to cope with university, e.g. Sharkin 2004; Morrison & Brown 2006; Payne et al. 2006; Wamser 2006. Although a small part describes an intervention trialled sequentially on different cohorts, most relates to a single trial of an intervention. Literature evaluating the impact of interventions on the attrition and retention of a cohort of students throughout their undergraduate studies appears to be entirely lacking.

Thus, despite the fact that every university in Australia has units, sections or staff dedicated to supporting students' academic and personal journeys through university, and despite the many student learning support and personal support interventions that have attracted government or university funding over the last decade and a half, very little is actually known about the longitudinal impact of student support interventions in terms of their effect upon retention and attrition.

This project sought to fill these significant gaps in knowledge about retention, attrition, and the impact of learning and personal support interventions on retention, so that the services and support Australian universities offer their students may be better targeted and more effective. Practically, it sought to bring about change identified as necessary within the partner universities, and to share amongst partner universities experiences of successful interventions and lessons learnt in the process of addressing identified needs.

In order to provide an evidence base enabling more effective decision-making in relation to the provision of support services for students at risk of attrition, the project sought to capture the experiences of students progressing through the three years of an undergraduate business degree, to create a picture of the factors influencing students to leave or stay at university.

From 2008–2010 data were gathered from first year, second year, and third year students in each of six diverse universities, for the purpose of enabling comparison of students' experiences in each of those years at each university and across universities. The project also tracked a cohort of students from first year through to their final year of undergraduate degree studies.

The project addressed two Australian Learning and Teaching Council (ALTC) priorities:

- research and development focusing on issues of emerging and continuing importance, and
- strategic approaches to teaching and learning that address the increasing diversity of the student body.

2.2 Aims of the project

The primary purposes of this collaborative project were to:

1. Enhance evidence-based practice relating to student retention by
    a. identifying the factors and combinations of factors critical to students' decisions to withdraw from studies in their first, their second, and their third year of their university studies, and
    b. identifying the student learning and personal support interventions that are key facilitators of students' decisions to remain at university throughout the course of their degree studies;
2. Increase the effectiveness of learning support and personal support interventions used by the partner universities, to better scaffold students' learning experiences and experience of university;
3. Provide data relevant to all Australian universities seeking to improve the effectiveness of the learning support and personal support interventions they offer their students;
4. Develop a bank of data that will provide the basis for a 'teaching and learning research concentration' in the business faculties of each partner university; and
5. Build capacity and community through the sharing among staff from seven* universities of experiences about existing student support interventions and changes to interventions arising from the project.

(*One of the seven partner universities withdrew from the project at the end of the first year, due to changes in institutional priorities because of the global financial crisis.)

The anticipated project outcomes specified in the funded grant application - and directly related to the primary purposes of the project - were:

- Identification of the relative influence of varied factors on the decision to withdraw from or remain at university over a three-year period, and what might be done to mitigate critical negative influences;
- Better understanding of the impact of student support interventions over time and of the characteristics of successful student support interventions;

- Development of a profile of students at risk of withdrawing throughout the course of their studies and identification of the needs of different market segments;
- Changes within each participating university to some of the learning and personal support interventions examined;
- Establishment of a teaching research concentration within each participating business faculty; and
- Growth of a nationwide community of practice which shares experience relating to retention, attrition and student support.

2.3 Project team and reference group

The project started its funded life with a project team of 15 academics drawn from seven universities (three from the lead university and two from each of the other partner universities). It also commenced with a reference group of 16. This group comprised staff working in various aspects of student support provision (three from the lead university and two from each of the other partner universities) and one academic who had undertaken research into students' first year experience and who agreed to provide input into the grant application phase of the project.

During the three and a half years between laying the groundwork for and completion of the project, there were numerous changes to the composition of both the project team and the reference group as a consequence of resignations, redundancies, changes of role, and periods of extended leave. The composition of the team and group was also altered by the withdrawal from the project of one of the partner universities. Nevertheless, throughout and in spite of personnel changes, project team and reference group members continued to work at each partner university to implement the two primary aspects of the project:

- data gathering, analysis and reporting; and
- the review of or changes to learning and personal support interventions designed to address attrition.

The project team and reference group members listed on the title page of this document represent those staff from each university who had greatest involvement in the project throughout its life and/or who remained active contributors at the time of the official termination of the project. Both project team and reference group members have been listed on the title page because achievement of both aspects of the project has been very much dependent upon information sharing and active partnership between academic staff and staff working in areas of student support provision.

3.0 Project design and methodology

3.1 Unfunded preparatory work: questionnaire development and ethics approval

A critical facet of this project's development was the period of unfunded preparatory work that occupied 14 months prior to the award by the ALTC of a national Competitive Grant. During this period, review of relevant literature and research involving current students contributed to the construction of several drafts of a 'Whole of University Experience Questionnaire'. The form required to obtain ethical clearances was also completed and submitted.

In 2006, the lead institution (University of the Sunshine Coast) created a research-teaching nexus designed to prepare the ground for the broader seven-university project. Drawing on data from the decade-long year Australian study of first year retention and attrition (Krause et al. 2005) as well as other relevant research, in Semester 1 2006 Advanced Research Methods students (53 USC third year business undergraduates) designed and self-administered a questionnaire on factors influencing attrition and retention at USC. This highlighted several factors in retention and attrition that had not featured in the national study, perhaps because the factors investigated in the national study had predominantly been determined at the inception of the study more than 10 years earlier.

In Semester 2 2006, Applied Research Methods students (169 USC first year business undergraduates) conducted focus groups within the classroom. Focus group responses to questions about factors likely to lead to attrition highlighted still more factors not investigated in the national study. These factors, together with those identified by the third year students, were subsequently included in a 126-item questionnaire on retention and attrition constructed by their lecturer (a USC member of the project team). Data obtained through Applied Research Methods students' subsequent self-administration of this questionnaire were discussed by these students during a tutorial and, subsequently, subjected to principal components analysis. (See Appendix 8.2, a journal article which describes the research-teaching nexus implemented at the lead university to assist questionnaire development.)

On the basis of the factor analysis; comments made by students after completion of the questionnaire; input from the seven project-partner universities; and input from our evaluator, a second draft of what was to become the Whole of University Experience Questionnaire was developed. In addition to questions relating to demographics (Section A) and factors influencing attrition (Section B), this second draft also contained items relating to the use and perceived usefulness of student support activities, services and facilities (Section C). To develop these items, a wide range of student support services in each university were consulted regarding the support services and activities about which they would seek students' feedback. This second draft, including the relevant university-specific Section C items, was trialled by a total of 247 students in two of the seven partner universities (again, all undergraduate research methods students with an academic interest in survey instruments). Those who completed the questionnaire were asked to make comments about the intelligibility and relevance of its items, its format and length.

Principal components analysis of the 247 responses to the second draft of the questionnaire, the students' comments, and comments from all partner universities informed construction of a third version of the questionnaire. A limited trial of this

third version was implemented in one university to eliminate previously undetected problems and to pinpoint any necessary minor changes.

The fourth and final version of the Whole of University Experience Questionnaire (refer Appendix 8.1) contained:

- 28 Section A demographic items
- 70 Section B items exploring students' experience of university
- approximately 14 Section C items investigating the use and usefulness of specified university services and facilities (the actual number of items varied in the questionnaire used by each of the project partner universities, reflecting different service naming and provision), and
- 3 Section D open-ended response items asking students for their perceptions of the best and worst aspects of services, facilities and support, and what needed to be improved.

Coincident with the later stages of questionnaire development, the partner universities began construction of an application for ethics approval, using the National Ethics Application Form. In mid-2007, immediately after the ALTC announced that the project had been awarded funding, this application was submitted to the lead university's ethics committee for approval. Written confirmation of ethics approval by the lead university and use of the universal application form facilitated the subsequent granting of ethics approval by partner universities. By the time funded work on the project began in December 2007, final ethical clearances had been obtained from all but one of the seven partner universities.

3.2 Project plan, timeline and activities

The implementation of a project designed to gather data spanning three years within the constraints imposed by a two-year funding period necessitated not only the preparatory work described above, but also timeline economies in the third year of project implementation. In the application for funding, partner universities presented to the ALTC (then the Carrick Institute) the project timeline and set of activities at Table 1: Project timeline and activities, overleaf

Table 1: Project timeline and activities

Year/Month	Activity
Pre-funding	
Feb-May 2007	• Liaise with partner universities to establish shared vision of project, identified needs and desired outcomes
March-June	Develop student support questionnaire items
June- Nov	• Meet with partner universities to confirm shared vision of project, identified needs and desired outcomes • With student support functions identify intervention information needs at each university (videoconference) • Develop preliminary interview schedules • Trial draft questionnaire • Liaise with student administration re processes to identify withdrawing students • Seek ethics approval
Phase 1: 2007/8	
Dec 2007	• Seek feedback on project from evaluator
Dec	• Develop Opinio databases for each partner university • Liaise with partner universities re questionnaire
Jan-Feb 2008	• Prepare Dean's letters and email requesting questionnaire completion • With student support functions develop strategies for evaluating efficacy of student support outcomes (videoconference)
1 week after S1 census	• Distribute email requesting questionnaire completion • Upload questionnaire, open access and monitor difficulties
3 weeks after S1 census	Return questionnaire responses
May- Sept	• Analyse 2008 questionnaires, including student support data • Forward analysis to partner universities • Develop draft interview questions using input from student support functions and questionnaire data (videoconference) • Trial draft interview questions
Oct	Identify students who have withdrawn
Oct-Nov	Interview students who have withdrawn and those 'likely to withdraw' who stayed
Dec	• Analyse 2008 interview data (videoconference) • Forward analysis to partner universities • Prepare and forward interim report to Carrick Institute (ALTC)
Phase 2: 2009/10	
Feb 2009	• Report findings from analysis of 2008 questionnaire and interview data to reference group and stakeholders in each partner university (and check project performance against partner needs)
Feb	• Seek evaluator feedback on project progress and plans
March-April	• Develop practical responses to project findings
1 week after S1 census	• Distribute email and Dean's letter requesting questionnaire completion • Upload and open access to 2009 questionnaire and monitor difficulties
3 weeks after S1 census	Return questionnaire responses
May	• Evaluate project in terms of measurable practical outcomes (videoconference) • Report project progress to Carrick Institute
May- Sept	• Analyse 2009 questionnaires, including student support data • Forward analysis to partner universities • Make any necessary adjustments to interview schedules (videoconference)
July	Present papers at HERDSA, ANZMAC and AFAANZ conferences on 2008 results
Oct	Identify students who have withdrawn
Oct-Nov	Interview students who have withdrawn and those 'likely to withdraw' who stayed
Dec	Present papers at ACIS and ANZAM conferences on 2008 results
Dec	• Analyse 2009 interview data • Forward analysis to partner universities
Feb 2010	• Report findings from analysis of questionnaire and interview data to reference group and stakeholders in each partner university (and commence gathering of final evaluative feedback on project performance)
1 week after S1 census	• Distribute email and Dean's letter requesting questionnaire completion • Upload and open access to 2010 questionnaire and monitor difficulties
3 weeks after S1 census	Return questionnaire responses
April	• Analyse 2010 questionnaires, including student support data • Forward analysis to partner universities
end April	Identify students who have withdrawn
May	Interview students who have withdrawn and those 'likely to withdraw' who stayed
June	• Analyse 2010 interview data • Forward analysis to partner universities • Evaluate project outcomes in terms of measurable practical outcomes (videoconference)
June	• Consolidate interview and questionnaire data over three years and meet with partner universities to discuss overall findings and project outcomes (videoconference)
July	• Write final project report • Evaluate project outcomes • Forward final project report to Carrick Institute (ALTC)

In practice, despite agreement amongst partner universities that this timeline would serve as the plan for project implementation, it soon became apparent that the project timeline needed supplementation. Six months after data collection had started, a member of the project team circulated an 'intended project logic' matrix that he had used in planning another ALTC project. The detail in this matrix highlighted the value of having all project team members discuss their project aims, outcomes, and activities for the purpose of ensuring alignment between what each university (and its project team members) anticipated and assumed. By contrast, the timeline focused only on the week-to-week activities required to achieve project aims.

As it was clear that alignment would not be readily achieved through videoconferencing, a deviation from plans to rely upon videoconferences only for national communication, saw a whole-day face-to-face meeting of partner universities convened in October 2008. All Whole of University Experience (WoUE) project team and reference group members were invited to the meeting, which was ultimately attended by eight project team members (from six of the seven partner universities) and six reference group members (from four universities, including the one unable to send a project team member). At that meeting the team completed a (modified) 'intended project logic' matrix, a matrix which subsequently became known as the project plan.

In this project plan, against each of the aims the team:

- identified stakeholders;
- developed a set of measurable key performance indicators (KPIs);
- defined strategies designed to enable achievement of the KPIs;
- related these aspects of the plan to the deliverables promised in the competitive grant application, and
- listed a set of assumptions about what was needed to make the project a success.

The discussion which led to the development of this set of assumptions elicited previously implicit feelings about what should happen, and gave a basis for openly and honestly talking about potential or actual difficulties in project management and interpersonal interactions.

The process of developing the project plan had unintended consequences. While it helped define strategies for achieving the project's stated aims it also led, through the defining of these strategies, to the adoption of new plans of action. For example, it became obvious that an annual face-to-face meeting was essential to the effective fulfillment of project goals. Further, the presence of a senior university administrator on the project team helped all recognise that, if the project was to deliver outcomes useful to the sector and senior managers on an ongoing basis, the development of a tool enabling institutional benchmarking of factors associated with attrition would be needed. Finally, the project plan provided a tool for reviewing and evaluating in detail progress against project aims, stated outcomes and deliverables. Table 2 (below) presents the project plan.

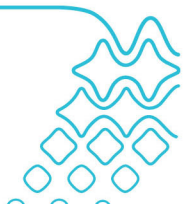


Table 2: Whole of University Experience project plan

Project aims	*Key stakeholders*	*Key performance Indicators/outcomes*	*Strategies for achieving goals*	*Deliverables*	*Underlying assumptions (critical to success of project)*
1. Enhance evidence-based practice relating to student retention by a. identifying the factors and combinations of factors critical to students' decisions to withdraw from studies in their first, their second, and their third year of their university studies, and b. identifying the student learning and personal support interventions that are key facilitators of students' decisions to remain at university throughout the course of their degree studies	**Students** Student Unions Secondary school advisors Family/friends **Support Services** International Student Relations **Business Schools** **Senior managers** **Staff** **DEEWR** **ALTC** Editors International Agents	Improved student awareness of and access to key support interventions Adoption of recommendations from WoUE project by partner universities Evidence of project recommendations in key strategy documents in the partner universities	Identify high impact interventions to allow targeted resourcing to improve student retention Communicate evidence-based recommendations from the WoUE project to key stakeholders Document take-up of recommendations from the project Inform students of the outcomes of project	Presentation of university-specific findings to staff and students, and discussion of implications of these within partner universities Presentation to ABDC T&L Network Journal articles Conference presentations Project report to ALTC	That there is: Valuing of the scholarship of learning and teaching Preparedness to engage in collaborative research Preparedness to share information with partners Maintenance of confidentiality re sensitive data A custodian of the complete data set, namely USC Adherence to ethical practice and principles Frank, honest disclosureof the good, bad and ugly Commitment to participate in an annual face to face meeting Valuing of differences and diversity Defining of and conforming to established research protocols, taking into account contextual differences and settings Sharing of resources and promotional material
2. Increase the effectiveness of learning support and personal support interventions used by the partner universities, to better scaffold students' learning experiences and experience of university	**Students** Student Unions **Support Services** University-wide International Student Relations **Business Schools** **Senior managers** **Staff** **ALTC**	Take-up of recommendations and identified changes emerging from project within partner universities Pre- and post-intervention change in student perceptions (measured by successive WoUE project surveys) Definition of generic categories of 'at risk' students	Communicate potential intervention strategies to senior management, admin and academic staff Document changes in practice by academic and administrative staff associated with WoUE project Inform students of the outcomes of project for the purpose of assisting them to identify their own needs Seek profile data on students leaving Define categories of at-risk students and develop appropriate interventions for each category – market segments	Presentation of university-specific findings to staff and students, and discussion of implications of these within partner universities Presentation to ABDC T&L Network Journal articles Conference presentations Project report to ALTC	

Project aims	*Key stakeholders*	*Key performance Indicators/outcomes*	*Strategies for achieving goals*	*Deliverables*	*Underlying assumptions (critical to success of project)*
3. Provide data relevant to all Australian universities seeking to improve the effectiveness of the learning support and personal support interventions they offer their students;	**Senior managers** Planning & Statistics **AUQA** **Support Services** Domestic/ International **Business Schools** **DEEWR** **ALTC** Australian universities ABDC ABDC T&L Network ANZ Student Services Association	Dissemination of information about retention impact factors to national university clusters Development of a benchmarking tool	Identifying common impact factors with reference to university and student demographic profiles Generate research collaboration around benchmarking	Presentation to ABDC and to ABDC T&L Network Benchmarking tool Journal articles Conference presentations Project report to ALTC	developed by the project Willingness to drive and profile the project in partner universities A commitment at senior levels to proactive retention measures or, where this is not apparent, that the project delivers value that creates interest in such commitment Continuation of business as a field of study in each university for the duration of the project Willingness by project management and reference group members to commit time and prioritise the project in their current workloads A commitment within the business schools and the wider university community, particularly academic and administrative staff, to proactive retention measures or, where this is not apparent, that the project delivers value that creates such commitment
4. Develop a bank of data that will provide the basis for a 'teaching and learning research concentration' in the Business Faculties of each partner university	**Business Schools** Academics Journal Editors Associate Deans, T&L Research	Quantity and quality of published journal articles or presentations Development of new T&L research collaborations within and across partner universities.	Provide a literature database to facilitate research publications and outcomes. Ensure data integrity and adequate response rates Provide resources to support data analysis Facilitate access to and understanding of the data captured in the project. Use the website to communicate progress on and outcomes of research projects Facilitate and document collaborative research opportunities and outcomes	Project website EndNote Library/ literature repository Journal articles Conference presentations Project report to ALTC	

Project aims	*Key stakeholders*	*Key performance Indicators/outcomes*	*Strategies for achieving goals*	*Deliverables*	*Underlying assumptions (critical to success of project)*
5. Build capacity and community through the sharing among staff from seven universities of experience about existing student support interventions and changes to interventions arising from the project.	**WoUE project management and reference groups** **ALTC** **Existing communities of practice**	Actions implemented as a consequence of meetings and contact Hosting of symposium on project findings for partner universities to share the outcomes of the project with existing communities of practice and other ALTC project groups related to retention	Maintain and develop a literature database to facilitate research publications and outcomes Host face to face meetings to build project and exchange information. Website construction and use for partners to share learnings and progress collaborative projects Foster a sustainable community of practice involving all partner universities Document at institution-level changes associated with the project	Project website EndNote Library/ literature repository Project teleconferences and meetings Symposium Project report to ALTC	

3.3 Project communication strategy

Subsequent to application for the ALTC competitive grant but before inception of the project, the project leader travelled to all partner universities to meet the partner university project team and gather information about specific institutional challenges relevant to the project and the items that needed to be included in the questionnaire. It was planned that such meetings would occur three times during the life of the project, in order to ensure that all partner university needs were being met. As outlined in the timeline in the competitive grant application, it was also our intention to meet regularly via videoconference, with meetings to be held at key times related to development of data gathering tools and discussion of data analysis.

In practice, however, the first time we sought to initiate a videoconference we experienced difficulties in accessing facilities and ensuring the availability of compatible technology across all sites. Investigation of web conferencing indicated that this was also unsuitable, given the number of sites we wished to include in the meeting. Thus we came to decide that teleconferences offered the most viable way of meeting regularly. These have been held at least three times a year, to support or review progress but also at times when key decisions needed to be made. As indicated in the previous section, within the first year of the project we also held a (previously unplanned) face-to-face meeting, and at this meeting we decided that we would meet annually face-to-face, a decision which rendered unnecessary the planned project leader visits to partner institutions.

In addition to our schedule of meetings, and partly as a consequence of ideas encountered by the project leader at an ALTC-organised project manager's meeting, it was decided to set up a project website. This had not been planned prior to project inception, but it soon became obvious that project participants needed a means of sharing ideas and information with each other on an ongoing basis. Specifically, we needed a means of discussing the interview questions to be used in data collection, and a means of discussing (and tracking our discussion of) plans for journal articles and who was to be involved.

We also needed a means of sharing the Endnote file and associated collection of articles that had been built at the lead university with the intent of facilitating the writing of journal articles. In what is believed to be a 'first', the Library at the lead institution discovered it was possible to overcome copyright prohibitions associated with storing journal articles on the project website by giving all partner universities direct access to articles via an Endnote file and persistent (URL) links, as long as all partner universities held the database in which the article appeared.

The final elements in our intra-project communication strategy were regular telephone and email contact, designed to ensure continued progress. Given that the project manager was situated at the lead university, such contact was important in ensuring that partner university needs – particularly during data collection phases – were identified and met, and that planned meetings were held at times that suited the majority of participants. Less obviously but equally importantly, regular informal contact via telephone and email, by both the project leader and project manager but especially by the project manager, served as a means of linking partners, of passing on ideas, and of identifying potential problems and addressing these proactively.

3.4 Data collection and analysis

Data collection and analysis in this project related primarily to the first project aim to 'enhance evidence-based practice relating to student retention by:

a. identifying the factors and combinations of factors critical to students' decisions to withdraw from studies in their first, their second, and their third year of their university studies, and

b. identifying the student learning and personal support interventions that are key facilitators of students' decisions to remain at university throughout the course of their degree studies'.

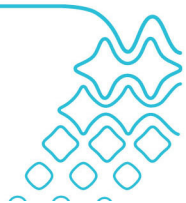
Data collection

Data were collected at three discrete intervals – during First Semester 2008, 2009 and 2010 – from first year, second year and third year business students in the six universities that were partners in the project: the University of the Sunshine Coast, Griffith University, Monash University, Murdoch University, the University of South Australia and the University of Southern Queensland. In the first year of data collection (2008), data were also collected from the seventh partner university, the University of Sydney.

The Whole of University Experience (WoUE) Questionnaire (see Section 3.1 and Appendix 8.1) was used to gather quantitative data on demographics, students' experience of university, and their use of and perceptions of the usefulness of various student support interventions. Qualitative data were gathered using the open-ended response section of the WoUE questionnaire seeking students' opinions on the best and worst aspects of university services, facilities and support, and what could be done to improve these. Interviews were also conducted with a small number of students who self-identified as having a high likelihood of leaving university before completing a degree and with a small number who self-identified as having no likelihood of leaving before completing a degree. These interviews were designed to enrich the quantitative data obtained from the questionnaire and gather information about how various factors interacted to increase or reduce the likelihood of attrition.

The project timeline indicated our intention to collect quantitative data in each year of the study during three weeks commencing immediately after the First Semester census date. However, before our first data collection phase a partner university reference group member pointed out that data collection during this period would almost certainly not include input from those students most likely to leave, i.e. those who had decided to leave and wished to avoid paying fees, which become due after the census date (typically the end of Week Five of the semester). We therefore decided to open our online questionnaire in Week Three of Semester One and, on the basis of ongoing surveillance of questionnaire completion numbers, we also decided to keep it open for a period of six weeks (rather than three).

Invitations for students to complete the questionnaire were issued (in each of the three years of the study) via email and announcements posted on faculty electronic learning management systems, and by lecturers who incorporated slides publicising the questionnaire in their teaching materials. Completion of the questionnaire was entirely voluntary and also anonymous, unless a respondent chose to provide contact details (enabling an interview) at the end of the questionnaire. After much discussion amongst project team members as to whether the provision of incentives for survey completion was desirable – concerns were raised that respondents might choose the same numerical response for all items – in some universities students who completed the survey (and provided contact details) were offered the chance to



win items such as book vouchers or an iPod. In retrospect, it appears that institutional culture, staff support for the survey, and the students' wish to give feedback probably had more impact on completion numbers than did the provision of incentives. The provision of incentives appears to have had no discernible impact on the validity of the data obtained.

Interview data were collected from selected students who had indicated at the end of the questionnaire their willingness to be interviewed. Contrary to initial plans, interview data were not collected each year at each university, largely because changes to project team membership at some partner universities militated against this. Qualitative data from the questionnaire were also lacking for some universities in the second year of the project as an undetected consequence of an Opinio software upgrade in the middle of the data collection period which caused the open-ended questions to be unavailable for some time at some universities. Nevertheless, over the three-year time frame of the project, qualitative questionnaire data were gathered at each partner university.

Data analysis

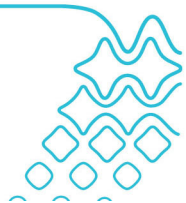
Data from the questionnaire were downloaded into SPSS from Opinio (the web-based survey tool used to gather the data). The total sample was divided into two groups: those who had responded 'no' and those who had responded 'yes' to a question in Section A (demographics) asking 'Do you intend to change to a different university in the future?' Research literature suggests that the characteristics of students who drop out and those who transfer may be quite different (Rummel et al. 1999; Herzog 2005; Hovdhaugen 2009), and it was felt that experiences reported by students who were committed to transferring to another university might be unduly influenced by that intention to transfer. The decision was taken, therefore, to exclude from the sample used for the analysis of factors underpinning attrition the group of students who had responded 'yes' to the question about intention to transfer.

Responses to Section B of the questionnaire, which dealt with the experience of university, were subsequently correlated with responses to the item in Section A, 'Please rate the likelihood of the following: I am likely to leave university before completing a degree', which required respondents to choose a point on a seven-point scale ranging from 'certain to leave' to 'certain to stay'. Intention to leave or intention to stay have been found by several researchers to strongly predict actual departure or persistence (Bean and Metzner 1985; Eaton and Bean 1995; Sandler 2000; Summers 2003).

Given that responses to Section B and the item in Section A were on ordinal scales, and that data obtained failed the assumption of normality in that responses to the Section A item were expected to be strongly skewed toward the 'certain to stay' end of the scale, Spearman's rho was used in data analysis. Correlations between intention to leave and experience of university were thus obtained for the sample as a whole; for the sample grouped into years and into number of semesters completed; and for the sample grouped as domestic or international students.

Data from the first two years of quantitative data collection were also subjected to principal components analysis (PCA) to derive factors associated with attrition. This analysis, together with structural equation modelling using all three years of quantitative data, will underpin the development of an attrition benchmarking tool subsequent to the formal conclusion of the project. Hierarchical regression analysis was also used to identify factors associated with domestic and international student attrition and satisfaction.

Qualitative data from the questionnaire were analysed using CEQuery in order to identify key themes in students' perceptions of their university's strengths and



weaknesses and provide each partner university with this analysis. Interview data were transcribed as intended but, given the unexpected institutional diversity in factors underlying attrition, the project team subsequently decided that the data obtained through interviews were best used primarily internally to enrich institutional-specific quantitative data, although it is expected that, subsequent to conclusion of the project, some partner universities may collaborate to produce a journal article based on findings from the qualitative data.

3.5 Critical success factors – review of project design, methodology and implementation

Lessons learnt

Through the process of designing and implementing this project several key challenges emerged which had to be addressed and from which the following lessons were learnt:

Maximise time availability
The constant challenge in a large project such as this was to find the time necessary to ensure the smooth day-to-day running of the project as a whole and at each site. To maximise our efficiency we shared presentations and reports amongst ourselves so that others could use them as templates, we shared our literature database, and we worked collaboratively on papers and conference presentations.

Balance 'nice to have' against 'need to have'
A partner university expressed concern that the initial draft of our questionnaire was so long that many students would be deterred from completing it. Collection of information 'nice to have' could have threatened the ability to collect information that was needed.

Check, check, and check again
In the middle of our survey period, we realised that the qualitative comment section of the questionnaire had 'disappeared' from some universities' surveys. Although we checked that the questionnaire was open and functional we did not go through every item of all six questionnaires, so it took some time for us to realise that some students in some universities had not been offered the option to make open-ended comments.

Employ multiple channels of communication
We discovered that the project could not run effectively without an annual face-to-face meeting, supplemented by regular teleconferences, telephone and email contact. The establishment of a project website enabling the sharing of documents and ideas was also important, even though time availability in practice militated against significant interaction and postings on the site.

Build intra-university relationships
The building of good relationships, prior to project commencement, with key service and support sections within each university helped to ensure the smooth running of the project especially when unforeseen changes were required.

Learn from each other
In many aspects of the project, what was learnt from each other was critical to building the project and meeting new challenges. Our final count of nearly 7,500

respondents, for example, was attributable to what was learnt from each other about strategies for increasing sample size. Communication on a national level and widespread communication at a local level are essential if projects such as these are to effectively balance local differences against the need for national consistency, and to use national data to increase local impact.

Involve the reference group
Our reference group provided important new information, perspectives and opportunities at key times in the project's development. Involvement of the reference group was important also because it helped to provide the critical mass necessary for project implementation and wider dissemination of project outcomes.

Recognise the different roles of project team and reference group members
Although our project initially differentiated project team and reference group roles broadly along the lines of investigation and implementation, in practice in each university the roles played out differently. In several universities, as anticipated, reference group members worked closely with project team members to develop implementation strategies based on the findings of the project. A reference group member at another university gave project team members access to the national body for student support professionals, thus greatly increasing the value and scope of our dissemination activity. In other universities, reference group members assumed only an occasional advisory role. A means needs to be found to ensure that active reference group members, and not just project team members, receive appropriate recognition and reward for their involvement in the project.

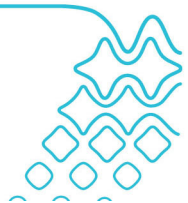
Adequately scope the project manager/research assistant role
In retrospect, for such a large multi-university project, employment of a full-time project manager/research assistant is desirable, especially if the project leader does not wish to take on significant project management tasks. Practically, however, in this case the maximum amount of funding available necessitated a choice between reducing the number of partner universities or employing the project manager/research assistant on a part-time basis.

Ensure succession planning
Between the awarding of the competitive grant and receipt of funding, the project team had already lost a member to employment at another university. Subsequently, project team or reference group membership has been affected by retirement, redundancy, resignation, changes of role, hospitalisation and maternity leave. These unexpected changes highlight the critical importance of having more than one project team and reference group member at each university and, also, the importance of those involved in the project having built wider enthusiasm for the project so that new recruits to the team can be found when necessary.

Critical success factors - project design, methodology and implementation

Of the lessons learnt during the implementation of the project, some issues were more important than others in the achievement of the project's full potential and stated goals. Factors that we perceive to be critical to effective project implementation in general are:

Unfunded preparatory work
Given that the one- or two-year time frame within which ALTC projects have to be completed allows little time for establishing of project directions and approvals once the funding period has commenced, it is essential to undertake some unfunded



preparatory work. During this time partnerships and agreement about directions need to be established and drafts of project ethics applications and instruments developed.

Ongoing communication, including face-to-face communication
Face-to-face communication is critical to a shared understanding of a project and to the achievement of its potential. In addition, regular communication via telephone and email, and the availability of a website for sharing of project information are vital.

Active leadership
Responsibility for project implementation in a multi-university project is necessarily shared across sites. Active leadership at each site is important as is the overall project leader's accepting responsibility for keeping in touch with the various sites. This responsibility should not be deflected to the project manager, who may not have the authority or academic status necessary to achieve required outcomes.

Responsiveness to changing needs and opportunities
Despite the funding body's requirement that grant applicants present a detailed timeline and project plan, in practice it is unusual for things to go exactly according to plan. Adherence to plans may actually prevent unanticipated opportunities being seized. It is vital to encourage identification of unexpected opportunities, and also to ensure sufficient budgetary flexibility to allow for reallocation of funding to new opportunities.

Succession planning and provision for handover
Even during projects of relatively short duration there may be changes to the project team as a consequence role change, job moves or other unforeseen events. It is essential to provide for this by involving multiple team members at each project site. It is also important to ensure some time for handover from a departing to a new project team member, in order to facilitate project knowledge transfer.

4.0 Project outcomes and impacts

4.1 Outcomes: Research findings

What did we expect to find?

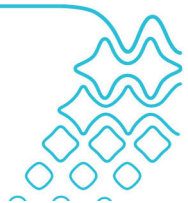
Research into attrition and retention highlights the pivotal role of both the student's personal background and the student's interactions with the institution. Tinto (1993) explains attrition in terms of the student's failure to integrate into an institution's social and academic systems, and suggests that retention is achieved through the development of student commitment to studies and the institution, the building of appropriate expectations, academic and social engagement, and feedback and support (Tinto & Pusser 2006). Bean (1980) describes attrition as a consequence of background variables, e.g. student prior academic performance and socioeconomic status, and organisational determinants, e.g. student perceptions of the degree's practical value, the opportunity cost of study, institutional quality, fairness of treatment, helpfulness of advice; as well as student grade point average (GPA), major, goal commitment, relationships with staff and other students, work commitments and involvement in campus activities.

Research into first year attrition in Australia has confirmed the role in attrition of prior academic performance, GPA, academic and psychological readiness, academic integration, and conflicting work commitments (Scott et al. 2008; Long et al. 2006; Queensland Studies Authority 2004; Peel et al. 2004). First year attrition, however, represents only one part of the attrition picture, although averaged attrition rates indicate first year attrition of 16.9 per cent of commencing students (DEEWR 2007), OECD figures indicate a completion rate in Australian universities of only 72 per cent (OECD 2009). In general, the amount of attrition that occurs in second year is at least half that in first year (DEST 2004) and further attrition occurs in third year, with the consequence that some universities graduate fewer than 60 per cent of the students who enrolled in first year.

The limited existing research into later year attrition suggests that the factors influencing later year attrition may be different from those influencing first year attrition. In the USA, Mohr et al. (1998) found that, although students nominated financial problems, transfer to another university, academic difficulties, family responsibilities, personal problems, and poor advising or teaching as principal reasons for withdrawal, thematic analysis identified four key dimensions leading to dissatisfaction: institutional alienation, e.g., feeling uncared for; dissatisfaction with guidance and access to information; dissatisfaction with quality of education; and dissatisfaction with policies and facilities. In Australia, Peel et al. (2004) found that later year students were more likely to report course dissatisfaction as a key factor in withdrawal, contrasting with the issues of transition, commitment, motivation and integration reported by first year students.

What have we found?

Analysis of our 2008, 2009 and 2010 data, gathered from universities in four Australian states, focused on similarities and differences in the factors associated with attrition: 1) in the first, second and third year of studies, 2) of international and domestic students, 3) across universities. This third avenue of investigation, the comparability of results from national studies such as this, sets the scene for further discussion of findings from the project.



Lessons from national studies

Despite the appeal of generalised conclusions drawn from national studies, the results indicate that caution needs to be exercised when aggregating results from student experience or attrition research across universities, or when extrapolating findings from single-university studies to other institutions. The project found that, while some factors associated with attrition are shared by some universities, fundamentally each of the six universities has an individual 'attrition profile'. Similarities and differences in factors associated with the likelihood of leaving before completing a degree are not predictable on the basis of type of institution, e.g. regional, urban, Australian Technology Network (ATN), Group of Eight (Go8), and only to some extent on the basis of student characteristics, e.g. university entrance score. Primarily, attrition seems to be a consequence of student commitment to the degree and academic self-efficacy combined with specific institutional characteristics that students identify as not meeting their needs.

Attrition in first, second and third year of studies

Of the 70 survey items listed, very few items appeared as factors associated with attrition in all six universities, either in all years of study or in any one year of study. Correlation analysis relating the 70 Section B items of the questionnaire to 'intention to leave before completing a degree' indicated notable differentiation between universities in respect of the triggers for attrition.

In Table 3 (below), which illustrates these differences, it can be seen that the only attrition triggers which span most universities and most years of study are 'lack of a clear reason for being at university'; and the feeling of having insufficient ability to succeed at university. Beyond these triggers, results appear to reflect institutional differences which can be seen especially by inspection of the strong to moderate correlations.

Before inspecting the table, however, it should be noted that somewhat arbitrary cut-off points have been used for descriptions of correlation strength, and that these reflect internal relativities rather than the relationship between correlation coefficient size and descriptions of strength usually used in reporting correlation analysis. Many different factors underpin attrition decisions in any one institution and, it seems, even for any one individual, for whom attrition appears to be the result of the aggregation of diverse factors generally followed by 'the straw that broke the camel's back'. The size of correlation coefficients, therefore, cannot be expected to be as high as might normally be expected, especially given that the analysis explored 70 potential associations with 'the intention to leave university before completing a degree'.

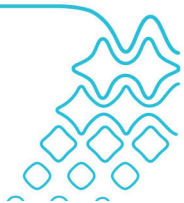


Table 3: Factors associated with attrition in six universities across three years of study

Behaviours, beliefs, and perceptions associated with attrition ✓✓* strong association (r>.250); ✓✓ moderate association (r>.150; <.249); ✓ weak association (r<.149)	Year of study – University 1			Year of study – University 2			Year of study – University 3			Year of study – University 4			Year of study – University 5			Year of study – University 6		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
n=	375	154	119	141	117	63	470	215	198	470	279	220	594	352	280	1245	546	445
COMMITMENT: INSTITUTIONAL																		
I am attending this university as a stepping stone to another university		✓		✓✓			✓	✓✓*	✓	✓	✓✓		✓		✓✓*	✓✓	✓✓✓	✓✓
The reputation of your university is not important when applying for a job	✓✓			✓✓	✓✓		✓		✓✓	✓	✓✓		✓	✓✓		✓✓	✓	
I attended this university because I was not accepted by the university of my choice	✓			✓✓				✓	✓✓		✓	✓✓			✓✓*	✓	✓	✓✓
I am not satisfied with the status of my university	✓	✓✓		✓✓	✓✓*		✓✓		✓✓	✓✓	✓		✓	✓✓	✓✓	✓✓	✓	
Overall I am not satisfied with my experience at university	✓✓	✓✓		✓✓*	✓✓*		✓✓	✓✓	✓✓*	✓✓	✓✓	✓✓	✓✓*	✓✓	✓	✓✓	✓✓	✓
COMMITMENT: DEGREE/COURSE																		
I do not have a clear reason for attending university	✓✓*	✓✓		✓✓*	✓✓*		✓✓*	✓✓	✓✓	✓✓	✓✓*	✓✓	✓✓	✓✓	✓✓*	✓✓*	✓✓*	✓✓
I was not able to enrol in the degree of my choice	✓✓			✓✓			✓✓	✓✓	✓✓*	✓	✓✓		✓		✓✓	✓✓	✓✓	✓
I do not know the type of occupation I want	✓✓	✓✓				✓✓*	✓✓	✓✓		✓✓	✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓
COMMITMENT: TIME																		
It is difficult to balance my social life and university	✓						✓✓			✓	✓		✓			✓		✓✓
It is difficult to balance family and university							✓✓			✓						✓		
It is difficult to balance work and university							✓✓			✓✓			✓✓			✓		
I find it hard to manage my time effectively	✓✓			✓✓*						✓	✓✓		✓✓	✓		✓✓	✓	
TEACHERS: TEACHING SKILLS & ATTITUDE																		
My teachers are not enthusiastic about what they teach	✓				✓✓		✓✓	✓✓	✓✓				✓✓			✓		
My teachers are not generally good at explaining things	✓✓*	✓✓			✓✓		✓✓		✓✓	✓			✓✓	✓✓	✓	✓✓		✓
My teachers do not try hard to make the courses interesting	✓				✓✓		✓✓		✓✓	✓✓			✓✓		✓	✓	✓	✓
Teaching staff do not make it clear from the start what they expect from the students	✓✓				✓✓		✓✓		✓✓	✓✓			✓✓	✓✓		✓	✓	
My teachers are not approachable	✓✓	✓✓		✓✓	✓✓*		✓✓		✓✓*	✓✓	✓		✓✓	✓✓	✓	✓		

Behaviours, beliefs, and perceptions associated with attrition ✓✓* strong association (r>.250); ✓✓ moderate association (r>.150; <.249); ✓ weak association (r<.149)	Year of study – University 1			Year of study – University 2			Year of study – University 3			Year of study – University 4			Year of study – University 5			Year of study – University 6		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
I have difficulty understanding the accents of some of my teachers							✓											
I have had a bad experience with a university teacher				✓✓*			✓			✓✓						✓		
TEACHERS: ACCESSIBILITY & SUPPORT																		
It is not easy to get help from teaching staff when I need it	✓✓*	✓✓		✓✓	✓✓*		✓✓	✓✓	✓✓	✓✓		✓	✓✓	✓	✓✓	✓	✓	
The teaching staff are not sensitive to individual student needs	✓✓		✓✓✓	✓✓			✓✓		✓✓	✓✓			✓✓	✓		✓		
Teaching staff do not usually try to accommodate my needs	✓✓			✓✓	✓✓		✓✓		✓✓	✓✓			✓✓	✓	✓	✓		✓
Teaching staff are not usually available when I need them	✓✓	✓✓	✓✓		✓✓		✓✓		✓	✓✓			✓✓	✓	✓	✓		
My teachers do not make a real effort to understand the difficulties students may be having with their studies	✓✓			✓✓	✓✓		✓✓			✓✓			✓			✓		
COURSE DESIGN																		
My teachers do not incorporate real world examples into their teaching	✓✓				✓✓*		✓✓	✓✓	✓✓*	✓			✓	✓	✓✓	✓	✓	✓
What I am learning at university does not build on study I have undertaken in the past	✓		✓✓				✓✓		✓	✓			✓			✓		
I am not satisfied by the work experience opportunities offered by the university													✓			✓		
FEEDBACK																		
I do not receive helpful feedback on assessment tasks	✓✓	✓✓		✓✓			✓✓		✓✓	✓		✓	✓✓	✓	✓	✓		
I do not receive prompt feedback on assessment tasks	✓✓	✓✓							✓✓				✓✓			✓		
LEARNING: ENGAGEMENT & BEHAVIOUR																		
My courses are not interesting	✓✓			✓✓*	✓✓		✓✓		✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	✓✓	✓
I do not enjoy the intellectual challenge of what I am studying	✓✓			✓✓*	✓✓		✓✓		✓✓	✓✓			✓✓	✓	✓✓*		✓	✓
I do not enjoy the opportunity to interact with students from different cultures							✓✓			✓	✓					✓	✓	
In group work I prefer not to work with people from different cultures																✓		
I do not participate in class discussions				✓			✓✓								✓✓	✓✓	✓	✓
I do not come to class prepared	✓✓*			✓✓					✓✓*	✓			✓✓		✓✓	✓✓	✓✓	✓✓

Behaviours, beliefs, and perceptions associated with attrition ✓✓* strong association (r>.250); ✓✓ moderate association (r>.150; <.249); ✓ weak association (r<.149)	Year of study – University 1			Year of study – University 2			Year of study – University 3			Year of study – University 4			Year of study – University 5			Year of study – University 6		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
I frequently skip class	✓✓	✓✓		✓✓			✓✓	✓✓		✓			✓			✓✓	✓	✓
I don't attend classes if notes and materials are on the website	✓	✓✓					✓✓		✓✓	✓			✓	✓	✓✓	✓	✓	✓
I do not regularly seek advice from my teachers	✓✓			✓✓					✓✓				✓			✓		
I do not work hard at university	✓✓	✓✓		✓✓*			✓✓		✓✓	✓			✓✓	✓✓		✓✓	✓✓	
LEARNING: BELIEFS & EXPECTATIONS																		
I do not have sufficient ability to succeed at university	✓✓	✓✓		✓✓*	✓✓*		✓✓	✓✓	✓✓*	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓*	✓✓	✓✓
My university workload is too heavy	✓✓	✓					✓✓					✓✓	✓✓			✓✓	✓	✓✓
I feel that my academic writing skills are not adequate for my university studies	✓✓	✓✓		✓✓	✓✓		✓✓			✓✓		✓✓	✓	✓	✓	✓✓	✓	✓✓
I find it difficult to comprehend a lot of the learning material		✓✓*		✓✓			✓✓	✓✓	✓	✓	✓	✓✓	✓		✓✓	✓✓	✓	✓✓
I have had difficulty adjusting to the style of teaching at the university	✓✓			✓✓	✓✓		✓✓		✓	✓✓		✓			✓✓	✓		
I do not need good analytical skills to do well in my studies	✓✓						✓		✓✓	✓	✓		✓		✓✓	✓		
To do well at university all I need is a good memory		✓✓										✓			✓	✓	✓	✓✓
LEARNING: ENVIRONMENT & INFRASTRUCTURE																		
The teaching rooms do not provide a high quality learning environment	✓			✓✓			✓✓			✓			✓✓*			✓		
The university's IT resources are not adequate for my learning needs	✓						✓✓			✓✓			✓✓			✓		
Class sizes at my university are too large	✓							✓✓	✓✓	✓				✓	✓✓			
The library resources are not adequate for my learning needs				✓✓			✓		✓✓*	✓✓			✓✓	✓✓		✓		
The timetabling of my classes is not convenient	✓						✓✓						✓			✓		
SOCIO-CULTURAL ENVIRONMENT & INFRASTRUCTURE																		
The university facilities are not adequate for my social needs	✓✓						✓			✓✓			✓			✓✓		
The university facilities are not adequate for my religious/cultural needs	✓✓						✓								✓			
Other students are not sensitive to the needs of students from different cultures	✓✓						✓									✓	✓	
I do not like the physical environment of the university campus	✓✓				✓✓*		✓✓	✓✓	✓✓						✓	✓		
I do not feel I belong to the university community	✓✓	✓✓		✓✓			✓✓	✓		✓✓	✓	✓	✓✓	✓✓		✓✓	✓	

Behaviours, beliefs, and perceptions associated with attrition ✓✓* strong association (r>.250); ✓✓ moderate association (r>.150; <.249); ✓ weak association (r<.149)	Year of study – University 1			Year of study – University 2			Year of study – University 3			Year of study – University 4			Year of study – University 5			Year of study – University 6		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
I find the university to be a lonely place	✓✓	✓✓		✓✓			✓			✓✓			✓✓			✓✓	✓	
I don't find it easy to travel to university				✓✓	✓✓		✓✓		✓✓*					✓		✓		
ADVISORS: ACCESSIBILITY & SUPPORT																		
I have not received good advice from the university about enrolment options in my degree	✓✓						✓✓		✓				✓✓			✓		
I did not receive good advice from a careers adviser at my university about choosing my degree	✓												✓					
I did not receive good advice from my school about choosing my degree										✓		✓✓	✓					
It is not easy to get help when I need it from administrative staff	✓✓						✓✓		✓✓	✓			✓	✓	✓	✓		
The administrative staff are not sensitive to individual student needs	✓✓*						✓✓			✓				✓		✓		
Administrative staff are usually not available when I need them	✓				✓✓		✓✓		✓✓*				✓			✓	✓	
Having a mentor at university would not be useful																✓		
PERSONAL CIRCUMSTANCES																		
I am concerned about my emotional health	✓✓	✓✓		✓✓			✓		✓✓			✓	✓✓	✓	✓	✓✓	✓	✓✓
I am concerned about my physical health		✓✓					✓						✓			✓		
I am often homesick	✓		✓✓*				✓				✓✓				✓✓	✓	✓	✓
I have financial problems							✓			✓✓			✓			✓	✓	✓
I am worried about the debt I am accumulating while I am attending university		✓✓*				✓✓*	✓✓			✓✓			✓✓	✓		✓		

A follow-up analysis at one of the six universities, using the data gathered in 2008, 2009 and 2010, indicates that, not only are factors in attrition differentiated by year of study, but also by semester of study. Table 4 presents these differences, with factors associated with attrition in relation to Tinto and Pusser's (2006) framework for institutional action.

Table 4: Factors associated with attrition in one university, grouped by year and semester of study

Focus of institutional action	Factor	Year of study			Semester of study				
		1st year	2nd year	3rd year	1st year 1st sem.	1st year 2nd sem.	2nd year 1st sem.	2nd year 2nd sem.	3rd year 1st sem.
Commitment	Commitment to institution	✓	✓		✓		✓		
	Commitment to degree/course	✓	✓		✓	✓	✓	✓	
	Commitment: time	✓			✓	✓			
Expectations	Teachers' skills/attitude	✓	✓		✓	✓	✓	✓	
	Teachers' accessibility/support	✓	✓	✓	✓	✓		✓	✓
	Course design	✓		✓	✓	✓			✓
Feedback	Feedback on assessment	✓	✓		✓		✓	✓	
Involvement	Academic engagement/behaviour	✓			✓	✓	✓		
Support	Academic self-efficacy/expectations	✓	✓		✓	✓	✓	✓	
	Learning environment/infrastructure	✓			✓	✓			
	Socio-cultural environment/infrastructure	✓	✓		✓	✓	✓	✓	
	Course/career advice	✓			✓	✓	✓	✓	
	Personal circumstances	✓	✓	✓	✓		✓	✓	✓

While it is not appropriate to extrapolate these specific semester-by-semester results to other universities, the finding that factors associated with attrition are differentiated by year and semester of study is generalisable to other institutions. Universities seeking to implement effective retention programs need to investigate and respond to such differences.

International versus domestic student attrition

Factor analysis was used to derive from the data five factors associated with experience of university: engagement, quality of teaching, facilities and services, self-efficacy, and university/life balance.

The aggregated data for all six universities suggest some difference in the factors associated with domestic and international students dropping out, but no difference in the factors associated with their sense of satisfaction or belonging. For international students, intention to leave is more strongly associated with poor facilities and services, while for domestic students, intention to leave is associated with lack of engagement and, to a lesser extent, with low self-efficacy and difficulties related to university/life balance. In the responses of each of the two groups to issues of teaching quality, there are similarities but also differences primarily related to expectations regarding teaching staff approachability, availability and helpfulness.

Table 5 (below), which focuses on the relationship of likely attrition to issues of teaching quality, illustrates these differences.

Table 5: Teaching quality factors that influence international and domestic students' decision to leave university without completing a degree

Behaviours, beliefs, and perceptions associated with attrition ✓✓* strong association (r>.250); ✓✓ moderate association (r>.150; <.249); ✓ weak association (r<.149)	**International students**						**Domestic students**					
	Uni 1	**Uni 2**	**Uni 3**	**Uni 4**	**Uni 5**	**Uni 6**	**Uni 1**	**Uni 2**	**Uni 3**	**Uni 4**	**Uni 5**	**Uni 6**
n=	69	68	171	331	204	438	580	239	713	639	1022	1792
My teachers are not enthusiastic about what they teach	✓		✓✓*	✓✓			✓		✓	✓	✓	
My teachers are generally not good at explaining things			✓✓			✓✓	✓		✓✓	✓	✓✓	✓
My teachers do not try hard to make the courses interesting			✓✓	✓		✓			✓✓	✓	✓	✓
Teaching staff do not make it clear from the start what they expect from the students						✓	✓		✓	✓	✓✓	✓
I don't receive helpful feedback on assessment tasks	✓✓*		✓✓*	✓✓		✓	✓✓		✓		✓✓	✓✓
I don't receive prompt feedback on assessment tasks				✓			✓	✓✓			✓	✓
My teachers are not approachable	✓✓*		✓✓	✓✓			✓	✓✓	✓	✓	✓✓	✓
It is not easy to get help from teaching staff when I need it			✓✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓✓	✓
The teaching staff are not sensitive to individual student needs				✓			✓✓	✓	✓✓	✓	✓✓	✓
Teaching staff do not usually try to accommodate my needs	✓✓*		✓✓	✓✓			✓✓	✓	✓	✓	✓✓	✓✓
Teaching staff are usually not available when I need them				✓		✓	✓	✓	✓✓	✓	✓✓	✓
My teachers do not make a real effort to understand the difficulties students may be having with their studies			✓✓*	✓		✓	✓	✓	✓	✓	✓	
My teachers don't incorporate real world examples into their teaching			✓✓*	✓	✓	✓✓	✓	✓	✓		✓	✓
I have had a bad experience with a university teacher			✓✓*			✓✓				✓		

In general, the data collected between 2008 and 2010 for this study suggest that, although there may be some general points of difference in the factors influencing the attrition, satisfaction and sense of belonging of domestic and international students, institutional characteristics play a large part in determining the experiences (and responses) of these two student groups. For example, comparison of 2008–2009 data from four of the six universities indicates:

1) factors affecting intention to leave are similar for domestic and international students: at one university they are the same; at two others they are different only in that domestic student, but not international student, intention to leave is associated with lack of engagement and self-efficacy; and at the fourth university they are the same except that lack of engagement is a predictor of international student attrition but not domestic student attrition
2) the adequacy of facilities and services influences international student satisfaction in two of the four universities, but domestic student satisfaction in the other two
3) quality of teaching is a major influence on domestic and international students' sense of belonging in all four universities. In two of the four universities self-efficacy and facilities and services influence sense of belonging of domestic student but not that of international students.

Demographic factors influencing attrition

Detailed analysis of demographic factors influencing attrition has not yet been completed, but preliminary analysis indicates that, within each university, the factors associated with attrition are different for students enrolled part-time and full-time and that they also differ on the basis of time spent on campus and on average grades. Preliminary analysis also suggests that having to take a loan or engage in full-time work to fund studies is a greater attrition risk factor in most universities than is being in receipt of Centrelink benefits (which may be seen as a proxy indicator for low socio-economic status). In further analysis it is planned to explore the relationship between experience of university and factors such as being the first in family to attend university, having carer responsibilities, and being enrolled as an internal, an external or a mixed-mode student.

Longitudinal analysis of factors in attrition

With the three-year period of data collection only recently completed, detailed analysis of longitudinal data has yet to be undertaken. It is anticipated that this will be published in the future. Nevertheless, preliminary analysis of data gathered from the cohort that completed Year 1 in 2008, Year 2 in 2009 and Year 3 in 2010 supports the earlier findings of differentiation from year to year in the factors influencing attrition decisions. However, although university-specific characteristics are still evident from these data, the range of factors related to attrition for the tracked cohorts is generally reduced when compared with the range of factors underpinning the attrition decisions of all first year students, all second year students, and all third year students who completed the survey over the three-year period. This is not surprising given the larger sample size, but changes in responses may also in some cases be the consequence of institutional changes, as appears to be the case in the university which mid-way through the data collection period changed from a one-hour lecture/two-hour tutorial format to a two-hour lecture/one-hour tutorial format. Responses subsequent to this change indicate an increased tendency to skip class and a greater tendency towards the belief that analytical skills are not needed to do well at university.

The use and usefulness of student and personal support interventions

Analysis of 2009 data for all universities indicates that, in general, when students use personal support interventions these are mostly seen as very useful. However, data also indicate that many, and often the majority of, students have either not used or are not aware of the support services available. Preliminary analysis of 2010 data indicates similar patterns. Table 6, which presents students use of and perceptions of the usefulness of a range of personal and academic support interventions, highlights the patterns discovered.

Table 6: Students' perceptions of the use and usefulness of student support services

Student support intervention: # Haven't used + Very useful (used by student)	Uni 1 %	Uni 2 %	Uni 3 %	Uni 4 %	Uni 5 %	Uni 6 %
Academic writing and presentation skills workshops	62# 68+	77 50			62 54	55 58
Learning skills workshops	66 57	73 45	64 36			61 50
Academic skills online	49 65	58 54	58 40	68 45	62 53	40 62
Individual consultation with academic skills adviser	82 67	75 40	66 37		65 54	72 53
Academic skills drop-in session (at library)	82 58	77 40		65 43		72 54
Academic skills drop-in session (at student services)	83 68	81 33		65 46		76 48
In-class academic skills workshop (during tutorial/lecture)	50 70			63 38	45 52	40 52
Out-of-class academic skills workshop (with academic skills adviser)	78 60	78 61		67 44	70 47	75 48
Face-to-face consultation with library staff	62 45	24 67		33 64	37 69	29 73
Telephone consultation with library staff	82 65	75 41			75 49	76 51
Email request for help or service	75 66	67 52		65 46	66 54	69 22
Library tutorials	66 71	43 57		56 46	62 57	60 52
In-class library tutorial (provided by librarian)	66 65	38 56		54 38		58 55
Library presentation provided at a lecture	56 65	36 66		57 36		44 50
Health/wellbeing services	90 52	70 64	60 39	71 53		75 65
Counselling	85 63	82 41	61 37	77 49	79 49	80 57
Welfare or financial support	88 52	86 25	62 42			82 51
Off-campus accommodation	86 62	85 27			87 45	84 46
Disability support	94 57	87 39	66 39	87 32	86 48	88 44
Support with grievances and appeals	95 55	88 43		85 32		85 40

Notes: 1) 'Very useful' represents the top third of aggregated responses on a nine-point scale;
2) Responses were strongly skewed towards the positive end of the nine-point scale;
3) Data are missing if not collected or if a service comparable to others could not be identified.

Summary
Our findings strongly indicate that, while some factors associated with attrition may generally be more salient than others, factors underpinning attrition tend to be university-specific and reflect student characteristics as well as their responses to the specific institutional culture and environment.

Detailed analysis and further explanation of findings from the Whole of University Experience project are available in Appendices 8.3, 8.4 and 8.5 which present some of the articles from the project accepted for publication.

4.2 Outcomes: Project deliverables

Project deliverables, as specified in the Whole of University Experience project application for competitive grant funding, encompassed:

- a report to the ALTC on factors influencing retention and attrition over students' three years at university, and on the longitudinal impact of student support interventions
- presentation of findings to a national audience at the annual HERDSA conference and other relevant discipline conferences
- publication of articles in four nominated journals
- the development within partner universities of teaching research collaborations leading to publication of papers relating to the impact of university-specific student support interventions.

The project plan subsequently developed also listed journal articles, conference presentations and the final report as project deliverables. To these were added the project website and Endnote library, which proved to be important tools supporting the achievement of the other deliverables. Additional also in the project plan was the specification of a project-related symposium, which has been manifested as a state-based workshop; a benchmarking tool; and internal dissemination activities within each partner university (see Section 5.1).

Fundamentally, the project has produced all but one of its anticipated deliverables, although the journals and conferences chosen for dissemination mostly differ from those nominated in the grant application, as does, to some extent, the focus of the publications. Unanticipated opportunities to present to special interest groups, such as Associate Deans (Teaching and Learning) and education librarians, have also occurred. Although the bulk of project publications draw on data relating to factors underlying attrition, some unanticipated publication outcomes have materialised as a consequence of the process of project implementation. These are a paper on leading, managing and participating in an ALTC grant (Appendix 8.6), and a paper on development of a research-teaching nexus (used in this case for the construction of WoUE questionnaire drafts) whose authors include two Honours students involved in the questionnaire construction while third year undergraduates (Appendix 8.2).

The one deliverable that has not been delivered is the development of wider teaching research collaborations within partner universities leading to the publication of papers. That is, although articles authored by project team members have been submitted to and accepted by journals and conferences, none of these articles has involved collaborations beyond the project team. This circumstance is partly because data adequate for the production of quality conference papers and publications only became available in the second year of the project, leaving a very short time period in which to build such collaborations, and partly because

significant demands on the time of those directly involved in the project have precluded systematic development of the intended wider collaborative and mentoring arrangements. Upon reflection, perhaps' the net was cast too wide' to anticipate that, given the available human and time resources, we could implement a project of this size simultaneously building a community of academics interested in working with the data generated.

In summary, in addition to this report, the project has produced the following deliverables:

Journal articles

Willcoxson, L, Cotter, J & Joy, S (2011) 'Beyond the first year experience: the impact on attrition of student experiences throughout undergraduate degree studies in six diverse universities', *Studies in Higher Education* vol. 36, no. 3. (A* in ERA list)

In the face of difficult economic circumstances, increased competition and student diversity, attrition and retention have become issues of great significance to higher education institutions seeking to survive. A large body of work has explored the relationship between attrition and the first year experience, but there has been little focus on students' experience of university in subsequent years despite the fact that later year attrition counts for approximately half of all attrition. This empirical research study examines students' experience of university in six diverse universities, across the three years of business degree studies. It finds that the factors correlated with intention to withdraw from university studies are differentiated by year of study and further differentiated by the university attended. The implications of these findings are discussed and a framework for institutional action is subsequently used to outline the dimensions of a relevant retention program.

Willcoxson, L and Wynder, M (2010) 'The relationship between choice of major and career, persistence, and experience of university', *Australian Journal of Education* vol. 54, no. 2. (B)

This study builds on earlier findings that clear choice of major and clarity of career direction is associated with persistence at university. Data obtained from a survey investigating business students' experience of university were correlated with intention to leave and examined with reference to the experience of two distinct major/career groupings – those students who had committed themselves to a career-related major, either accounting or marketing, and those who were enrolled in the generic bachelor of business, which is identified with no specific business careers. Findings suggest that generalisations, even within a single faculty, may be inappropriate for our study identifies differences in the risk factors associated with each of these three of the many majors within a faculty of business. More research is needed to identify further differences in the factors that influence attrition from different majors so that interventions can be focussed and effective.

Willcoxson, L 'Factors affecting intention to leave in the first, second and third year of university studies: a semester-by-semester investigation', *Higher Education Research and Development* Accepted. (A)

As most research into attrition and retention has focused on attrition during the first year of studies, we know little about the relationship between students' experience of subsequent years and their decisions to withdraw from university. This paper addresses this gap in research by examining the relationship between students' intention to withdraw from studies and their experience of university in each of the three years of business degree studies. This empirical research indicates that the factors affecting intention to withdraw are differentiated not only by year but also by semester of study.

Willcoxson, L, Manning, M, Johnston, N & Gething, K (2011) 'Enhancing the research-teaching nexus: Building teaching-based research from research-based

teaching', *International Journal of Teaching and Learning in Higher Education* vol. 23, no. 1. (B)

Definitions and practical interpretations of the research-teaching nexus are various, but almost invariably the link between teaching and research lies in the direction of transferring research into teaching rather than vice versa. This transfer is achieved by using research to inform teaching and, less frequently, by engaging students in research. Usually these students are final year undergraduates and the research project is purpose-built to develop in students the desired course learning outcomes. This paper reports an alternative realisation of the teaching-research nexus. It presents a case study of teaching that was informed by research and engaged both first year and final year undergraduate students in research, using problem-based learning. Subsequently, the research undertaken by the students as part of their learning process directly informed development of a large, government-funded research project, thus completing an unusual two-way relationship in which research underpinned teaching and learning activity, and teaching and learning activity underpinned research.

Willcoxson, L, Kavanagh, M & Cheung, L 'Leading, managing and participating in inter-university teaching grant collaborations', *Higher Education Research and Development* Accepted. (A)

This paper examines the leadership and management of multi-university collaborations funded by national teaching grants. It commences with a review of literature relating to stages of project development, critical operational issues, impediments to collaboration, and the leadership and management of teaching grant collaborations. Finally, it explores critical success factors in teaching grant collaborations from three perspectives – that of leader, manager and team member.

Copies of these journal articles are included in the appendices with the written permission of the editor of each of the journals concerned.

Conference papers, external presentations, workshops and dissemination

Leask, B, Willcoxson, L, Hibbins, R & Troedson, D (2009) 'What really matters? Factors affecting international and domestic student retention and satisfaction'. *Presentation at the Australian International Education (AIEC) Conference*, Sydney, 13-16 October.

It is in a university's best interests, as well as the best interests of students, if those who commence study stay to complete it. This is increasingly important when the direct and indirect costs associated with international student recruitment and the provision of services to this group are considered. This paper reports on research undertaken as part of a project funded by the Australian Learning and Teaching Council (ALTC). Quantitative and qualitative data collected from six universities across Australia in 2008 and 2009 have been analysed to identify the relative influence of varied factors on the decision to withdraw from or remain at university. For the purposes of this paper, hierarchical regression analyses have been conducted for both international and domestic students. This has allowed a comparison of the influence of factors such as university status, facilities and services provided, teaching methods, student services and student perceptions of their academic skills and abilities across a range of different types of universities. The results have implications for marketing and recruitment, academic development and student service provision.

Kavanagh, M, & Willcoxson, L (2009) 'Is one bad experience all it takes? The effect of student experience, learning and personal support services on attrition'. *Presentation at the Australia and New Zealand Student Services Association (ANZSSA) Conference*, Brisbane, 6-9 December 2009.

In recent years the Australian Government established a Learning and Teaching Performance Fund from which it allocates money to universities in support of their teaching

initiatives. The funding allocation decision is based on seven indicators, two of which are related to retention and progression rates across all years of undergraduate study.
This paper presents the results of research conducted as part of a three-year Australian Learning and Teaching Council-funded project. It examines associations between student experience and learning/personal support services items and a) likelihood of leaving university and b) overall satisfaction with the student experience. Both quantitative and qualitative methods are used to present results for each university, highlight differences, and draw conclusions for the entire sample. In general, the findings indicate that students who responded positively (negatively) regarding experience with the university are less (more) likely to leave university. However, interestingly, while overall satisfaction with the university experience is an important determinant of whether to leave university before degree completion, it is not the only important consideration.

Willcoxson, L, Cotter, J & Joy, S (2009) 'Beyond the first year experience: Factors associated with attrition in first, second and third year in six diverse universities'. *Presentation at the Australia and New Zealand Student Services Association (ANZSSA) Conference*, Brisbane, 6-9 December 2009.

In the context of increasingly diverse student populations and increasing competition for students, attrition and retention have become issues of great significance for universities. To date, most research into attrition and retention has focused on the first year experience and as a consequence academics, student services staff, and administrators have built a good understanding of the factors underlying first year attrition, and how to deal with these. There has, however, been little attention paid to students' experience of university in subsequent years, despite the fact that later year attrition counts for approximately one half of all attrition. In this presentation, we draw on our research conducted as part of a three-year Australian Learning and Teaching Council-funded project to explore students' experiences across the three years of business degree studies in six diverse universities. We will provide evidence that the factors correlated with intention to withdraw from university studies are not only differentiated by year of study, but also differentiated by the university attended. We will discuss the implications of this differentiation for the delivery of student services, and consider what changes are needed to proactively meet the needs of second and third year students as well as those of first year students.

Willcoxson, L (2009) 'Why do Business students drop out? Evidence from first, second, and third year students'. *Paper presented at the Australia and New Zealand Academy of Management (ANZAM) Conference*, Melbourne, 2-5 December 2009.

In Australia we have learnt a lot about attrition in the first year of university studies but little about attrition in subsequent years, despite government statistics showing that the combined second and third year attrition rate is almost equal to the first year attrition rate. There has also been little systematic study of attrition amongst business students. This paper reports research into the relationship between business students' intention to withdraw from studies and their experience of university in the first, second, and third year of studies. Findings indicate that factors affecting intention to withdraw from a business degree are differentiated by year and semester of study. This suggests that, to be effective, retention programs need to be similarly differentiated.

Joy, S & Willcoxson, L (2009) 'Strategies to address attrition in first year and beyond: lessons from the Whole of University Experience project'. *Workshop facilitated for Victorian Associate Deans Education/Teaching*, Monash University, 20 November 2009.

This workshop/lunch provides an opportunity to hear about some of the results from a six-university longitudinal attrition and retention study of undergraduate business/commence students.
The session will enable you to discuss the research with two of the researchers and to meet and share experiences with other Associate Deans Education/Teaching from other Victorian Universities. You should know more about the causes of student attrition in each year of undergraduate study, and have developed some evidence-based, practical strategies for

dealing with attrition in your own university.
The session will start by discussing what has been learnt about attrition from the ALTC-funded 'Whole of University Experience' project, drawing on data gathered from first, second and third year business students in six diverse universities over a two-year period. A brief presentation will provide insights into the factors that influence students to drop out, and differences in attrition factors related to year and semester of study.
Against this background we will explore together what can be done to increase the retention of first, second and third year students in different universities. During the second hour we will have lunch and the chance to continue discussion!

Willcoxson, L (2009) 'Is attrition and retention just a first year issue?' *Presentation to Queensland University Libraries Office of Cooperation (QULOC) Education Practitioners*, Sippy Downs, 18 September 2009.

Willcoxson, L (2009) 'The Whole of University Experience Project: Lessons on attrition from first year and beyond'. *HERDSA News*, vol. 31, no. 3, 10-12.

Willcoxson, L, Kavanagh, M & Hibbins, R (2010) 'Student attrition: Exploring what we know; Strategies for reshaping what we do'. *Workshop facilitated at the Higher Education Research and Development Society of Australasia (HERDSA) Conference*, Melbourne, 6-9 July 2010.

The aim of this workshop is to explore the factors that underpin attrition throughout the three years of degree studies and, on this basis, develop strategies for addressing attrition within participants' own faculties and universities. After a brief overview of the Whole of University Experience project, funded by the ALTC, facilitators of the workshop will present a series of five-minute vignettes highlighting key insights from the project. Each vignette, focusing on a specific student demographic group or aspect of institutional responsibility, will be followed by a 15-20 minute exploration of the implications for participants' own practice or for practices within their universities. A final summary session will draw together the various lessons from the workshop, assisting participants to sketch their own institutional priority action plan.

By the end of the workshop participants should:

- better understand the journey and challenges experienced by students as they progress through the three years of their degree studies;
- be able to identify aspects of students' experience of particular relevance to their own and their institution's practices, and
- have developed and prioritised a set of personal and/or institutional actions designed to address attrition.

Willcoxson, L (2010) *Presentation on the Whole of University Experience project findings to the ABDC Associate Deans Teaching and Learning meeting*. Melbourne, 9 July 2010.

State-based workshops in Western Australia and South Australia are scheduled to take place after the end of the project funding period.

4.3 General and university-specific impacts: KPIs

The project outcomes specified in the funded grant application were:

- Identification of the relative influence of varied factors on the decision to withdraw from or remain at university over a three-year period, and what might be done to mitigate critical negative influences

- Better understanding of the impact of student support interventions over time and of the characteristics of successful student support interventions
- Development of a profile of students at risk of withdrawing throughout the course of their studies and identification of the needs of different market segments
- Changes within each participating university to some of the learning and personal support interventions examined
- Establishment of a teaching research concentration within each participating business faculty
- Growth of a nationwide community of practice which shares experience relating to retention, attrition and student support.

In the project plan, these intended outcomes were re-cast as key performance indicators (KPIs - see Section 3.2) to provide a set of measurable intended impacts enabling evaluation of the project's performance in relation to its stated aims.

In line with the differing foci of the project's aims, some KPIs in the project plan relate to impacts external to partner universities and some relate to internal impacts within partner universities. This section commences with discussion of general impacts, those external to partner universities, before presenting an outline of measurable project impacts within each partner university.

General impact of the project

The Whole of University Experience project plan specified the following outcomes intended to have an impact on the university sector as a whole:

1. Development of a benchmarking tool
2. Dissemination of information about retention impact factors to national university clusters
3. Hosting of a symposium on project findings for partner universities to share the outcomes of the project with existing communities of practice and other ALTC project groups related to retention.

As it is not possible for those involved in the WoUE project to influence non-partner university responses to project findings or use of materials developed during the project, the general impact of the project can be defined only in terms of what has been produced for the sector relative to the KPIs listed in the project plan. Impact in this case, necessarily relates to availability rather than uptake of information and materials.

Under these terms, the following impacts can be identified:

1. Analysis of project data is expected to lead to development of a benchmarking tool (currently under development), which will be available for universities seeking to benchmark performance in a range of factors associated with attrition. A journal article describing the tool will make it available both nationally and internationally.
2. Dissemination of information about factors associated with attrition and retention has occurred through conferences targeting those involved in international education; student services; business faculties; higher education teaching and staff development; meetings of Associate Deans (Teaching and Learning) from business faculties; and state-based workshops. Three journal articles specifically relating to factors underpinning retention and attrition have been accepted for

publication or already published in international journals. The six universities partnered to the project span the range of national groupings – Australian Technology Network, Group of Eight, Innovative Research Universities, New Generation Universities – and, thus, project findings have sector-wide relevance. However, dissemination activities have not specifically targeted each of these national groupings because the presentation of comparative data has provided a more persuasive picture of how university characteristics influence attrition.

3. Organisational and cost factors led to the decision to develop state-based workshops and a workshop at a national conference rather than the planned large symposium. The sharing of project findings within states and with existing communities of practice such as the Business Associate Deans (Teaching and Learning) creates a greater possibility of ongoing communication between those interested in investigating and addressing attrition.

University-specific impacts of the project

The key performance indicators (KPIs) listed against the project aims relevant to partner universities are expressed almost entirely as demonstrable impacts within partner universities as a consequence of the project. These KPIs are:

1. Improved student awareness of and access to key support interventions
2. Adoption of recommendations from WoUE project by partner universities
3. Evidence of project recommendations in key strategy documents in the partner universities
4. Take-up of recommendations and identified changes emerging from project within partner universities
5. Pre- and post-intervention change in student perceptions (measured by successive WoUE project surveys)
6. Definition of generic categories of ‘at risk’ students
7. Development of new teaching and learning (T&L) research collaborations within and across partner universities;
8. Quantity and quality of published journal articles or presentations
9. Actions implemented as a consequence of meetings and contact.

Across the six universities partnered to the project, achievement of the KPIs has been variable, as potential project impacts have necessarily been affected by issues such as institutional culture and priorities; institutional leaders’ recognition of a problem and willingness to act; networks within the institution; personnel changes at senior organisational levels and in the project team; and, inevitably, the time available to design and effect change.

In the following paragraphs the impact that the project has achieved in each partner university is outlined with reference to the KPIs.

Griffith University
Particular work is being undertaken on the needs and expectations of sessional staff who teach, who are tutors and head tutors resulting from the finding that tutors are an important point of contact for students wanting assessment and course information. Reports are being disseminated and implications for the induction of sessional staff are being considered. New induction programs are being developed and implemented.

The importance of satisfaction with diverse groups in group work is being developed into workshops on mentoring 'home' and international students on group work skills. This work is being done in communities of practice and materials are being entered in resource banks.

Monash University

Monash University is reviewing induction and ongoing training for sessional teaching staff to ensure that first year tutorials, where there are more opportunities to provide one-on-one teaching and small group discussions, focus on building supportive relationships between staff and students and facilitate group work to foster friendships.

Tutors are also provided with training in cultural and cross-cultural issues to facilitate discussion in culturally diverse classrooms.

Elements of the faculty approach have been adopted across other faculties of the university through sharing of resources and dissemination of best practice.

Murdoch University

The involvement of Murdoch University in the project raised awareness of 'things we could do better' in supporting the campus life of students. Although the project outcomes identified a small percentage of student attrition, the qualitative outcomes suggested that there were key areas for improvement and future consideration. These areas include:

- *Support services*

  On the whole it appears that Murdoch provides a range of services which are considered useful by the students. However, a number of areas for improvement were noted. These include:

  - the types of academic skills courses provided by the library
  - the usefulness of the career connections services
  - the communication with student administration and/or student support services for information about programme requirements.

  To this end, the student support services and student administration centre have undergone a significant overhaul in providing information to students in a more streamlined manner to reflect these needs.

- *Orientation and student engagement activities*

  Participation in the study identified that students do not begin their relationship at the point of enrolment but rather by the initial contact with the university. Hence, providing information to parents, partners and friends; additional course advice sessions; and school social events, i.e. barbecues, have been added to already established orientation day activities to engage students.

- *Discipline-specific strategies*

  The project outcomes established that student retention was a function of discipline or major studied. The outcomes specifically allude to the need for greater development of 'soft' skills to help students achieve a greater work/study/life balance. As a result, the scaffolding of unit offerings has been a focus of the Business School's Teaching and Learning Committee.

- *University and business school branding*

  It is important to note that students felt that the university brand was important to job prospects. Therefore, an outcome of this study has been for Murdoch University to focus on the university and business school brands. The building of

the business brand is a key KPI for Murdoch University's *Strategic Plan 2010–2015*.

University of South Australia

The impact of involvement in this project at UniSA has been significant. Changes to service delivery and heightened awareness of the need to continue to focus on key service and resource areas have been enhanced in both the wider university and within the Division of Business. The results of the surveys and the follow-up interviews provided a useful trigger for data based discussions with the Pro Vice-Chancellor/Dean of Business, the Division Executive Committee and individual heads of school within the Division of Business. The key message for these groups was the crucial importance of the quality of teaching as a factor affecting retention and the need to resource services to support learning at a divisional level as well as at a university level. Thus, while the findings were in some ways not unexpected and, in many instances, confirmed findings of other student surveys, involvement in the project provided an opportunity for triangulation and confirmation of the importance of improving resourcing and changing aspects of service delivery in some areas.

As a result we have been able to implement some significant changes and improvements to resourcing and service delivery at both divisional and university level in the last two years:

- A trial Student Engagement Officer position within the office of the Dean Teaching and Learning was extended for a further two-year period and is likely to be further extended. This position has been established to assist in creating a greater sense of community on campus. The positions are always filled by either current or recently graduated students.
- This position was 'split' into two 0.5 positions, to ensure a focus on the discrete and different needs of international and domestic students as well as on strategies to enable and facilitate greater interaction between these two groups. This was in response to the findings in the data that, while the factors affecting attrition were in some ways similar for both groups, there were also some important differences.
- The allocation of some dedicated social space on our cramped city campus in which students can use the newly purchased range of leisure equipment such as a Wii, a Table Tennis table and a Foosball table. This initiative was in response to students indicating that the campus lacked a sense of community and belonging.
- Free textbooks in first year core courses were provided to students from some equity groups in 2010. This was a significant allocation of funding from within the Division in direct response to feedback in the surveys and interviews that financial issues were a significant factor in attrition for students from these groups. The initiative was conducted on a trial basis. The evaluation of its impact will determine whether or not it is continued in its current form or in a modified form in 2011.
- The library extended its opening hours to allow students greater access to computers and study spaces after hours.
- The location of computers on campus and the opening hours of computer rooms was advertised more widely to students at critical times. The need for more computers to be made available on campus was once again put on the agenda of the Facilities Management Unit.

University of Southern Queensland

An effort has been made to inform students of the support services available to them via the university website and email correspondence. As yet, the success of these initiatives has not been determined.

Some progress has been made towards adopting some of the recommendations of the WoUE report that was prepared based on 2008 data. Further recommendations have been made based on the 2009 data, while the 2010 data have not yet been fully analysed. Examples of the progress made to date include:

- Assessment practices of courses with high attrition rates have been reviewed resulting in reduced attrition rates for the majority of these courses
- There has been an investigation of learning and assessment methods to more fully engage distance education students, including assessment that incorporates generic skills development
- Students are extremely happy with the introduction of Camtasia lecture/PowerPoint recordings.

Generic categories of at-risk students have been identified as follows:

- Carer responsibilities are an issue primarily on external domestic students – 37 per cent have some carer responsibilities
- Employment-related pressures are primarily an issue for domestic students. Employment hours are greatest for external students; however, work pressures are a significant retention factor for domestic on-campus students.
- Course load pressures are highest for international external students; however, course load pressures are also a retention factor for domestic external students.

University of the Sunshine Coast

USC's involvement in the project raised awareness of attrition and retention as issues of concern for staff at all levels of the organisation. Presentation of WoUE findings specifically relevant to USC in 2008 (to all senior staff), 2009 (to all staff), and 2010 (to senior staff and Faculty of Business staff) underpinned changes designed to better meet the needs of students across the university. Informed by WoUE findings, the Student Services section developed targeted strategies for increasing student awareness of and access to key support interventions:

- a Student Engagement Officer was appointed
- a 'campus life and student groups' website was created
- students were given access to a 'student club' facility and a greatly increased number of student social activities are offered
- a 'just-in-time' academic skills drop-in session for business students was established
- in-class library skills and career guidance sessions were expanded.

In 2009 the *USC Learning and Teaching Plan* was revised to include a strategy specifically related to retention: 'Strategy 3.1 - Improve student retention rates through developing and implementing early intervention programs for 'at risk' students across all faculties'. This strategy was tied to the development of a *USC Student Retention Plan*, the actions in which are directly informed by the findings of the WoUE project about attrition triggers at USC. The actions associated with the Retention Plan will involve all USC functional areas working collaboratively.

Data obtained through the WoUE project demonstrating the salience of different attrition risk factors in different years of study, complement data obtained by the USC Strategic Information and Analysis Unit (SIAU) indicating the relationship between increased attrition risk and specific demographic factors. Both these

sources of data were used in the development of the *USC Student Retention Plan*. Further analysis of the WoUE demographic data, which is more finely granulated than the SIAU demographic data, will enable USC to identify interactions between specific attrition risk factors and provide more targeted assistance to students.

Although teaching research collaborations associated with the WoUE project have yet to be developed within USC, one such potential collaboration has been identified. It is expected that the rich and extensive data obtained through the project will continue to provide evidence to guide institutional decision-making and will be a basis for academic publication, for at least a year or two beyond the formal life of the project.

4.4 Critical success factors – review of project outcomes and impacts

Lessons learnt

In the process of attempting to achieve project outcomes and impacts several key challenges emerged which had to be addressed and from which the following lessons were learnt:

Make time
As with project implementation, the issue of time remains a constant challenge. Unless each project team member assumes responsibility for achieving specified outcomes, and drives the achievement of these outcomes, competing demands inevitably mitigate against progress towards defined outcomes and deliverables.

Facilitate genuine input from and learning by all partners
If all partners are to learn from and truly be part of the project, it is incumbent upon the lead institution to facilitate sharing and input, capture and dissemination of ideas; and documentation of shared understandings, outcomes and deliverables. All project partners, including the lead institution, must play an active role in the development of outcomes and deliverables.

Disseminate internally from the inception of the project
For project outcomes to have resonance and be sustainable within the sponsoring university, it is important to begin building widespread intra-institution awareness of project goals and processes as soon as the project commences, and to continue disseminating information throughout the life of the project.

Document activity, progress and outcomes on a regular basis
This is especially important in a project which depends upon others across the university to address issues identified through analysis of data gathered from students. What has been done in response to awareness-raising presentations of data is often not perceived by those implementing change to be a direct outcome of the project and, as a consequence, a project's impact may, to some extent, need to be inferred rather than demonstrated in terms of cause and effect.

Distribute funds as evenly as possible
While a centralised plus decentralised model of project management makes it easier in some ways to oversee and facilitate project outcomes, the common university practice of rewarding academic staff for the funds they bring in suggests that greater incentive may be provided, and greater responsibility for outcomes be taken in partner institutions, if funds are distributed evenly between partners. Such a

strategy, however, necessarily creates other project management issues related to consistency of vision and complementarity, rather than duplication, of work done.

Anticipate and provide for harvesting of outcomes beyond the life of the project
In projects such as this, the time needed to analyse and write about data gathered is constrained during the life of the project by the many project development tasks and other academic commitments. The data retain their value for several years beyond the life of the project and, thus, if the potential research outcomes and institutional benefits from the project are to be fully realised, it is important to anticipate and provide for harvesting of outcomes for some time after the official project completion date.

Critical success factors – achieving project outcomes and impacts

From the lessons learnt while trying to achieve the project outcomes and impacts there emerged a few factors perceived to be critical to the achievement of project outcomes and impacts in general. These are:

Enthusiasts with the power to get things done
When selecting partner staff and universities it is important to seek those who genuinely care about the outcomes of the project and have the time and energy to make sure things happen as and when they should. It is also helpful to have within each partner university a team member with identifiable position power, as this lends credibility to the project and facilitates change arising from the project.

Specified person/s to act as driver of outcomes
In the face of competing demands on time, the achievement of project outcomes, especially those which take time to develop such as journal publications, depends upon specified individuals taking responsibility for ensuring outcome delivery. In a large project, responsibility for driving outcomes needs to be spread across members of the project team.

Sharing of project benefits
Unless project team members perceive that there is an equitable distribution of recognition, rewards and opportunities arising from the project, their motivation to contribute to the development of project processes and outcomes is likely to be reduced and team cohesion is likely to be affected. Achieving an equitable distribution is, nonetheless, a difficult thing to do in practice, given that opportunity does not equate with outcome, i.e. even when project team members agree to drive outcomes such as publications they may not find the time available and this role may subsequently need to be taken by others in order to fulfill project deliverable commitments. Under these circumstances, perhaps the key issues are to ensure equitable distribution of opportunity and recognition (relating to involvement in the project) and team discussion of outcomes and rewards that appear to be unevenly distributed.

Encouragement for performance; sanctions for non-performance
It has become evident through the life of this project that funding bodies need to actively require leaders in the institutions they have funded to report on their activities to facilitate and sponsor the institutional uptake of project outcomes. The current process of vice-chancellor or deputy vice-chancellor sign-off only at the time of application leaves all responsibility for project success with individuals who may, in practice, be rendered powerless to achieve anticipated outcomes by institutional actions, e.g. related to non-renewal of contract, redundancy or senior management

disinterest. Concomitant with funding body encouragement of institutions to provide real support for the achievement of project outcomes, sanctions for non-performance, such as the requirement to return funding when none or few of the project outcomes have been achieved, would possibly assist in ensuring a more considered approach by institutions to providing real (rather than notional) support for funded projects.

5.0 Dissemination and linkages

5.1 Internal dissemination at partner universities

Within each partner university the activities associated with dissemination have differed in response to different needs, networks, opportunities and organisational cultures. The following paragraphs outline the dissemination activities that took place at each partner university and underpinned achievement of project impacts within each partner university

Griffith University
Initial findings from the first and second administrations of the survey instrument were selectively compared with data from the Australasian University Survey of Student Engagement (AUSSE), the International Student Barometer (ISB) and the Starting@Griffith data and presented at an orientation of new program directors and program service officers in the Griffith Business School (GBS).

Regular reports from the results of the WoUE surveys are given to members of the GBS Learning & Teaching Committee.

Monash University
Sharing of project findings and dissemination of the results have been significantly disadvantaged by changes in staff, roles and responsibilities. During the period of the project there were changes in the senior management team within the faculty.

State-based discussions with other Victorian university business education providers have resulted in dissemination of the findings across the sector and informal commitments to continue discussions beyond the conclusion of the project. Individual staff within these institutions have expressed interest in maintaining contact to promote awareness of attrition issues and to encourage information sharing.

The findings of the project will continue to be used for induction and training of sessional staff to raise awareness of the nature of students' difficulties and students' perceptions of their learning environment.

Murdoch University
Interim reports have been developed at each stage of the project in order to provide feedback to the school and other relevant members of the reference group.

Involvement in the project has had an impact on the engagement of the Business School teaching staff. It was encouraging to note that students reported that teaching staff were enthusiastic about the subject matter and were meeting individual needs. Dissemination of such project outcomes is the focus of a Business School report currently being developed as a summary of the three-year project.

A state-based workshop presenting the project outcomes is also being planned for November 2010 and will include internal Murdoch University stakeholders as well as those from other universities within Western Australia.

University of South Australia
Internal dissemination has occurred both formally and informally throughout the life of the project. Formal presentations outlining key findings from each stage of the project were provided to:

- Division Executive

- Division Teaching and Learning Committee
- University Teaching and Learning Committee (chaired by the Deputy Vice-Chancellor Academic)

Informal discussions were held on various occasions with:

- the Pro Vice-Chancellor for the Division of Business and the Manager of the City West Campus
- the University Student Services Manager in the Learning and Teaching Unit
- heads of school in the Division of Business
- the Dean International
- campus librarians
- core course coordinators.

The result has been an increased awareness of the range of factors affecting attrition amongst a range of academic and service staff and their managers at both a divisional and university level.

University of Southern Queensland

A comprehensive report of the results was prepared using the data from each of the 2008 and 2009 rounds of the survey. In 2009, the results were broken down into five student cohorts and this analysis revealed interesting differences between the groups. The 2008 report was disseminated via the Dean's Executive Committee, presentations to staff and through a web page link. The main form of dissemination of information to students was via the faculty web page. The 2009 report will be disseminated in the same way. A final report that compares 2008 and 2010 results is planned over the next months.

University of the Sunshine Coast

Internal dissemination activities have occurred in each year of the project. Each year different aspects of project data have been considered to create awareness of attrition as an issue and develop understanding of the specific aspects of the university experience associated with attrition at USC. Activities undertaken were:

2008

- Presentation to senior managers from across the university on factors influencing attrition at USC (Section B) and student perceptions of the best and worst aspects of their university experience and what needed to be improved (Section D)
- Presentation to the Faculty of Business on factors influencing attrition from the faculty, and student perceptions of the best and the worst aspects of their university experience and what needed to be improved
- A workshop was run as part of the Vice-Chancellor's Learning and Teaching Forum examining issues associated with intention to leave university prior to completing a degree
- Discussions on project findings and their implications were held with groups of staff from the Capital Programs and Operations Section, Student Administration, the library, and Student Services.

2009

- Using 2008 and 2009 combined data, a presentation on curriculum and assessment-related factors influencing attrition was given at the Vice-Chancellor's Learning and Teaching Forum for staff from across the university
- A presentation on factors influencing attrition was made to USC student mentors

- Presentations or discussions on project findings and their implications were held for groups of staff from Student Services, the International Office, and the library.

2010

- Data from 2008–2009 were used to provide an evidence base as the *USC Student Retention Plan* was being developed, a process which involved one-on-one discussion with senior staff from all sections of the university
- Data from all three years of the project were used in a workshop for senior staff to inform decisions on which high impact, collaborative actions should be taken to address attrition and improve student experiences across the three years of a USC degree;
- At a workshop held for the Faculty of Business and other interested staff from across the university (35 in total), data from the three years of the project were used to highlight issues underpinning retention of students grouped by various demographic variables, and the consequences for attrition of changing the balance of tutorial and lecture provision.

It is anticipated that the WoUE project findings will continue to influence retention-related actions at USC as they are embedded in the actions associated with the *USC Student Retention Plan*.

5.2 External dissemination

External communication with stakeholders was inbuilt in the form of specified project deliverables: the final project report to the ALTC, conference papers and journal articles (see Section 4.3 for a detailed list of outcomes in terms of specified deliverables). It was also anticipated that the process of project evaluation would to some extent assist in the dissemination of project findings and deliverables, given that the chosen evaluators worked in areas directly relevant to the focus of the project.

Subsequently, however, further opportunities for external communication were sought or found.

- Presentations of project findings were made to meetings of Associate Deans, Teaching and Learning, a group convened under the auspices of the Australian Business Deans Council and to education librarians
- A state-based workshop was developed and run for business faculty staff from Victorian universities not partner to the project; two further state-based workshops (In Western Australia and South Australia) will take place after the project funding period has ended
- An overview of the project and its implications for student support services was presented at the Australian and New Zealand Student Services Association conference
- A workshop was run at the conference of the Higher Education Research and Development Society of Australasia for the purpose of disseminating project outcomes and assisting those present develop attrition action plans relevant to their own institutions
- A Whole of University Experience group was established on the ALTC exchange, enabling sharing of documents that might be of interest to others, such as the

original application, the survey instrument, and an outline of project findings to date (including a review of relevant literature); and

- *Campus Review* interviewed the project leader with the publication in mid-July 2010 of a one-page article on the project and its outcomes.

Linkages with discipline groups or ALTC project groups, beyond those discussed above, have not occurred primarily because of lack of available time to foster such relationships.

5.3 Critical success factors – review of dissemination and linkages

Lessons learnt

Reflection by the project team and members of the reference group has led to the identification of a number of strategies for ensuring effective dissemination of project findings and materials, and the development of linkages supportive of the wider sharing and application of project outcomes. The lessons learnt are:

Provide time for dissemination during the project
In any project the lead time required to produce results necessarily limits the time for dissemination available within the project funding period. It is important to begin dissemination activities as soon as possible, without waiting for final data or materials to become available.

Identify 'paper champions'
Dissemination through journal articles and conferences is an important strategy for ensuring that what has been learnt from the project reaches others who may wish to engage with those lessons and remains available to others long after the project has finished. Unless a 'paper champion' is identified to drive the development of a publication, good dissemination intentions are readily overwhelmed by other more immediate tasks.

Use state-based workshops
Although there are many potential ways to disseminate project findings or outcomes, the use of state-based workshops offers the potential advantage (over conferences and similar presentations) of enabling the development of an ongoing community of practice related to the project.

Disseminate both within and across universities
The presentation of local data gathered within the context of a national project renders the local data considerably more persuasive. The presentation of data gathered nationally provides a greater opportunity for colleagues from across the higher education sector to identify issues of local relevance. A balance between local and national dissemination is important to facilitate the widest possible uptake of project findings and outcomes.

Create the space to engage and share
For dissemination to be successful it is necessary not only to present project outcomes but also to engage colleagues in real exploration of the relevance of what has been found to their own practices. Thus, it is important to create safe spaces for sharing information and opinions. For a project team presenting potentially sensitive

institutional information, it is vital to develop clear guidelines regarding what can and what cannot be disclosed to colleagues within and outside the partnership, and how the identify of organisations should be protected when sensitive data are being presented.

Plan to disseminate beyond the life of the project
Time for dissemination during projects is often limited by involvement in project development. Project lessons and outcomes are often not clear or fully realised until the end of the period of funding. It is essential, therefore, to plan (and find funding) for dissemination activities beyond the 'official' life of the project.

6.0 Evaluation

6.1 Formative evaluation

As indicated in Sections 3.2, 4.2 and 4.3, evaluation of the delivery of project deliverables and achievement of project outcomes was tied, in the first case, to the delivery of material outputs (articles and presentations) and, in the second case, to measurable key performance indicators outlined in the project plan.

From the time the Whole of University Experience project was granted funding, the project evaluator, Professor Geoff Scott of the University of Western Sydney, was involved in giving input into project and questionnaire design and strategies for evaluation. This input, through a face-to-face meeting with the project leader and subsequent telephone contact, ensured that our project team learnt from and built on his work on the causes of attrition. It also led to the use of CEQuery (Scott 2005) as a research tool. We subsequently decided to develop our project plan and use this for formative evaluation purposes during our teleconferences and annual meetings. The framework for evaluation provided by Professor Scott was discussed at our first annual meeting and used as a checklist against which to assess whether our project plan would serve us well as a tool for evaluation. Although the question of resourcing was, to a large extent, outside the team's capacity to influence given the specified level of funding and already chosen project team, the team determined that our project plan had provided a tool for evaluating the other three facets of Professor Scott's evaluation framework. The four facets of the evaluation framework are:

1. quality of conception (of what you are doing)
2. right people in right place with right tools – quality of resourcing
3. extent to which those involved (stakeholders) have found the project useful
4. What impact has the project had?

When Professor Scott had to withdraw from the project evaluator role because of competing demands on his time, we were pleased to have Professor Sally Kift of Queensland University of Technology (QUT) accept the role as our project evaluator. Her work on the first year experience has direct relevance to the focus of the project, and this ensures that evaluation of the project occurs not just with reference to processes used but also, at least implicitly, with reference to the content area on which the project focuses. Professor Kift attended the second national meeting of our project team, has had access to the project website, has been included in email communication, and has provided input regarding project progress, evaluation strategies, possible linkages and dissemination strategies.

6.2 Summative evaluation

For the project team, summative evaluation took place at the June 2010 national meeting when the project team assessed the project's outcomes against the project plan and also with reference to Professor Scott's evaluation framework. The discussion of the project's performance in terms of its deliverables and key performance indicators (Sections 4.2 and 4.3) provides a summative evaluation of the project in terms of measurable outcomes. In this section, a summative evaluation of the project made by the members of the project team and reference

group who attended the 2010 final national meeting of the project team, is presented with reference to Professor Scott's framework.

Quality of conception

- This project has been proven to have addressed an important issue: extending what we know about first year attrition, and looking beyond this. Our data, the gaps in literature, and the realities in partner universities demonstrate this.
- The national focus of the project has increased its local strength.

Quality of resourcing

- Lack of continued (personnel) resourcing in some universities has proven to be an issue
- There has been a lack of commitment in some universities, at the faculty level and above, to continue the project
- The project leader has been dedicated, engaged and courageous
- Griffith University has provided a great venue for national project meetings
- IT service provision has been good in general, but there has been some lack of quality control associated with the use of Opinio questionnaire software
- Resources provided for the gathering of both qualitative data have not been used at some universities.

Extent to which stakeholders have found the project useful

- There has been insufficient evaluation of student response to changes from project
- Students in some universities have been given insufficient feedback on project outcomes
- In some universities managers have used data to bring about change
- Colleagues and conference attendees comment on the richness and usefulness of data
- The project has provided a wealth of data for academics to continue writing papers and, thus, exploration associated with first and later year attrition and the impact of personal support interventions can continue.

Impact of the project

- A continuing impact through publication is anticipated
- The project has provided very credible data, due to both the size of the data set and the quality of the questionnaire
- The project has helped identify and address a large gap in the literature and professional practices related to attrition and retention.

In summary, the Whole of University Experience project has made a significant contribution to the higher education sector and delivered against its specified deliverables and outcomes. The project has traversed new territory by inviting and hearing the voices of later year students. It has used cross-sectoral collaboration to achieve improvement in student engagement in the partner universities, and it has provided a useful process model (and tools) for colleagues in other disciplines and other universities who wish to investigate attrition and potentially benchmark performance. The project findings have also underpinned considered and concerted collaboration between faculties and support services at the partner universities, enabling significant, contextually appropriate changes.

6.3 Independent evaluation

A formal, independent, summative evaluation of the Whole of University Experience project was conducted upon conclusion of the project by Professor Sally Kift (QUT), an ALTC Fellow. This independent evaluation provides a comprehensive overview of the project's processes and outcomes with reference to the ALTC's and the grant scheme's principles, as well as ALTC documents relating to the key learnings and challenges discovered in other projects. The evaluation also examines the project outcomes with reference to the project's stated outcomes and deliverables, and with reference to feedback obtained from project team and reference group members.

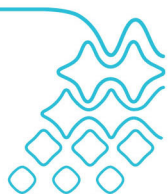
The project evaluator concluded:

> *The value of this project to the sector is considerable – in terms of its processes, products and the internal institutional impacts in collaborator universities. In the post-Bradley era, the government's focus is very firmly fixed on attainment and participation, the quality of the student experience, and student learning outcomes. In this context, the Whole of University Experience Project has made an important and timely contribution. It has delivered a rich new evidence base, is able to lay claim to some critical changes having already occurred in individual collaborator institutions, and has had significant research publication outputs based on the data analysis already conducted. The extensive data gathered under the auspices of the project should continue 'to provide evidence guiding institutional decision-making, and a basis for academic publication, for at least a year or two beyond the formal life of the project' (Final Report, 4.3). Critically, the project has directed much needed attention to factors associated with attrition in later years of the student experience (second and third years), and facilitated discussion around frameworks for evidence-based institutional responses that constitute effective interventions in this regard. The project's major findings that factors correlating with intention to withdraw are multifaceted, differentiated both by year and semester of study, and also differentiated by the university attended, have reinforced the need for institutions to collect their own data on the student experience to inform individual institutional responses and interventions. The project has also gathered valuable evidence on student perceptions of the usefulness of various university support services.*
>
> *… This evaluation identified specific indicators of success and has assessed the project against them. Within the constraints of time, resourcing, staff turnover, and one partner institution's departure, this project has achieved considerable and significant outcomes and impact. The project team members, the reference group members, and the project leader in particular are to be commended for their enthusiastic, passionate and dedicated pursuit of the project outcomes. There is little if anything to fault in the way this project has been conducted and much to praise. Valuably, from the ALTC's perspective and for the benefit of future projects, there is a considerable amount of thoughtful reflection and advice that has been communicated in project reporting about the lessons that have been learnt and the critical success factors that have been identified. It is also entirely appropriate and desirable that, as one collaborator has commented 'significant products from the project will emerge over the next 18 months as we all have a chance to digest and analyse and publish and present the project's findings'.*

The complete text of the independent evaluation can be found in Appendix 8.7.

In summary, the Whole of University Experience project has almost achieved the entirety of outcomes anticipated at commencement, has achieved some

unanticipated outcomes, and has produced significant deliverables for both partner universities and the sector as a whole. It has been an ambitious, large and lengthy project but it is expected that it will continue to deliver value for its various stakeholders for some years to come.



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Single response:	**2009 University of the Sunshine Coast**
Respondent id:	39125
Start date:	11/25/09 12:28 PM
Completed date:	11/25/09 12:28 PM
Response language:	English [en]

1. **What year were you born?**

   2009

2. **How are you enrolled?**

   2. Part-time

3. **Are you?**

   2. Female

4. **Are you an External student?**

   2. No

5. **Do you attend classes on campus?**

   2. No

6. **How many courses have you completed towards your university degree?**

   1. Less than 4 (including zero)

7. **Which country are you a citizen of?**

   Afghanistan

8. **Are you an Aboriginal, Torres Strait Islander or Australian South Sea Islander?**

   -

9. **Are you enrolled as an International Student?**

   -

10. **Is a language other than English spoken in your family home most of the time?**

    -

11. **Do you have dependent children or other carer responsibilities?**

    -

12. **Are you the first person in your family to attend university?**

    -

13. **Do you intend to change to a different degree in the future?**

    -

14. **Do you intend to change to a different university in the future?**

    -

15. What preference did you give your current degree choice on your university application?

-

16. What was your pathway to this university?

-

17. How many years gap did you have between high school and commencing university studies?

-

18. In which trimester did you commence your university studies?

-

19. Have you studied at another university?

-

20. How many courses are you studying this semester?

-

21. On average, how many hours (including formal class time) do you spend studying each week?

-

22. On average, how many hours per week do you spend in paid employment?

0

23. During semester, how many days per week (including half-days and evenings) do you typically spend on campus?

No days

24. Please rate the likelihood of the following: I am likely to leave university before completing a degree

Certain to leave	-	-	-	-	-	-	-	Certain to stay

25. Which of the following scores best represents your average academic results in your previous year of study (either at university, school or TAFE)?

-

26. How important to you are the following sources of financial support?

	Unimportant					Very important
Centrelink benefit	-	-	-	-	-	-
Part-time or casual work	-	-	-	-	-	-
Full-time work	-	-	-	-	-	-
Parents/family	-	-	-	-	-	-
Savings	-	-	-	-	-	-
Cadetship	-	-	-	-	-	-
Scholarship	-	-	-	-	-	-
Loans	-	-	-	-	-	-
Spouse/Partner	-	-	-	-	-	-

31. **Please use the scale to indicate the extent to which you disagree or agree with the following statements**

	Strongly Disagree							Strongly Agree
I have difficulty understanding the accents of some of my teachers.	-	-	-	-	-	-	-	-
I work hard at university.	-	-	-	-	-	-	-	-
I have had difficulty adjusting to the style of teaching at the university.	-	-	-	-	-	-	-	-
My courses are interesting.	-	-	-	-	-	-	-	-
It is difficult to balance my social life and university.	-	-	-	-	-	-	-	-
Administrative staff are usually available when I need them.	-	-	-	-	-	-	-	-
I have had a bad experience with a university teacher.	-	-	-	-	-	-	-	-
I received good advice from a careers adviser at my university about choosing my degree.	-	-	-	-	-	-	-	-
Teaching staff are usually available when I need them.	-	-	-	-	-	-	-	-
The administrative staff are sensitive to individual student needs.	-	-	-	-	-	-	-	-
I enjoy the intellectual challenge of what I am studying.	-	-	-	-	-	-	-	-
To do well at my university studies all I need is a good memory.	-	-	-	-	-	-	-	-

32. **Please use the scale to indicate the extent to which you disagree or agree with the following statements**

	Strongly Disagree							Strongly Agree
It is difficult to balance family and university.	-	-	-	-	-	-	-	-
I enjoy the opportunity to interact with students from different cultures at university.	-	-	-	-	-	-	-	-
The university's IT resources are adequate for my learning needs.	-	-	-	-	-	-	-	-
I know the type of occupation I want.	-	-	-	-	-	-	-	-
My teachers are generally good at explaining things.	-	-	-	-	-	-	-	-
I am often homesick.	-	-	-	-	-	-	-	-
My teachers try hard to make the courses interesting.	-	-	-	-	-	-	-	-
I am satisfied with the status of my university.	-	-	-	-	-	-	-	-
I participate in class discussions.	-	-	-	-	-	-	-	-
Having a mentor at university would be useful.	-	-	-	-	-	-	-	-
I am worried about the debt I am accumulating while I am attending university.	-	-	-	-	-	-	-	-
I was able to enrol in the degree of my choice.	-	-	-	-	-	-	-	-
It is difficult to balance work and university.	-	-	-	-	-	-	-	-
I have a clear reason for attending university.	-	-	-	-	-	-	-	-
What I am learning at university builds on study I have undertaken in the past.	-	-	-	-	-	-	-	-
I find it difficult to comprehend a lot of the learning material.	-	-	-	-	-	-	-	-
My university workload is too heavy.	-	-	-	-	-	-	-	-
I am concerned about my physical health.	-	-	-	-	-	-	-	-
I received good advice from my school about choosing my degree.	-	-	-	-	-	-	-	-
Teaching staff make it clear from the start what they expect from students.	-	-	-	-	-	-	-	-
I need good analytical skills to do well in my studies.	-	-	-	-	-	-	-	-
The teaching rooms provide a hiqh quality learning environment.	-	-	-	-	-	-	-	-
I find it hard to manage my time effectively.	-	-	-	-	-	-	-	-
Overall I am satisfied with my experience of university.	-	-	-	-	-	-	-	-

33. Please use the scale to indicate the extent to which you disagree or agree with the following statements

	Strongly Disagree							Strongly Agree
The university facilities are adequate for my social needs.	-	-	-	-	-	-	-	-
I find the university to be a lonely place.	-	-	-	-	-	-	-	-
I find it easy to travel to university.	-	-	-	-	-	-	-	-
I come to class prepared.	-	-	-	-	-	-	-	-
The university facilities are adequate for my religious/cultural needs.	-	-	-	-	-	-	-	-
I frequently skip class.	-	-	-	-	-	-	-	-
Class sizes at my university are too large.	-	-	-	-	-	-	-	-
The timetabling of my classes is convenient.	-	-	-	-	-	-	-	-
I like the physical environment of the university campus.	-	-	-	-	-	-	-	-
I am satisfied by the work experience opportunities offered by the university.	-	-	-	-	-	-	-	-
I don't attend classes if notes and materials are on the web.	-	-	-	-	-	-	-	-

34. What or who are you likely to consult when you need information about your program requirements?

	Least likely to consult							Most likely to consult
The Handbook (hard copy or electronic)	-	-	-	-	-	-	-	-
Course Outline	-	-	-	-	-	-	-	-
Lecturer	-	-	-	-	-	-	-	-
Tutor	-	-	-	-	-	-	-	-
Faculty Program Adviser	-	-	-	-	-	-	-	-
Student Administration	-	-	-	-	-	-	-	-
Student Services	-	-	-	-	-	-	-	-
Fellow students	-	-	-	-	-	-	-	-
Parents	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-

35. What or who are you likely to consult when you need information about your assessment requirements?

	Least likely to consult							Most likely to consult
The Handbook (hard copy or electronic)	-	-	-	-	-	-	-	-
Course Outline	-	-	-	-	-	-	-	-
Lecturer	-	-	-	-	-	-	-	-
Tutor	-	-	-	-	-	-	-	-
Faculty Program Adviser	-	-	-	-	-	-	-	-
Student Administration	-	-	-	-	-	-	-	-
Student Services	-	-	-	-	-	-	-	-
Fellow students	-	-	-	-	-	-	-	-
Parents	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-

36. How would you like the University to communicate with you about your courses or enrolment?

	Please don't use							Please use
Hard copy letter in the mail	-	-	-	-	-	-	-	-
USC Portal or Blackboard	-	-	-	-	-	-	-	-
University website	-	-	-	-	-	-	-	-
Information sessions	-	-	-	-	-	-	-	-
Email	-	-	-	-	-	-	-	-
Home telephone	-	-	-	-	-	-	-	-
Mobile telephone	-	-	-	-	-	-	-	-
SMS	-	-	-	-	-	-	-	-
Social networking space (e.g. FaceBook, MySpace)	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-

37. Please use the scale to indicate the value of any of the following preparatory courses that you have used prior to the start of the semester.

	Have not used	Not useful							Very useful
Enabling course in maths	-	-	-	-	-	-	-	-	-
Enabling course in statistics	-	-	-	-	-	-	-	-	-
Pre-orientation academic writing and study skills	-	-	-	-	-	-	-	-	-
Computer basics for beginners	-	-	-	-	-	-	-	-	-

38. Please use the scale to indicate the value of any of the following Academic Skills services that you have used.

	Have not used	Not useful								Very useful
Enabling courses (e.g. writing, computer literacy)	-	-	-	-	-	-	-	-	-	-
Computer skills weekly workshops	-	-	-	-	-	-	-	-	-	-
Academic writing and presentation skills workshops (e.g. referencing, essay writing, presentation skills)	-	-	-	-	-	-	-	-	-	-
Academic study skills workshops (e.g. time management, effective reading, note taking, group work)	-	-	-	-	-	-	-	-	-	-
Peer adviser program	-	-	-	-	-	-	-	-	-	-
Academic skills online materials (Blackboard)	-	-	-	-	-	-	-	-	-	-
Individual consultations with Academic Skills Adviser	-	-	-	-	-	-	-	-	-	-
Academic skills drop-in session (at the library)	-	-	-	-	-	-	-	-	-	-
Academic skills drop-in session (at Student Services)	-	-	-	-	-	-	-	-	-	-

39. Please use the scale to indicate the value of any of the following Information Technology (IT) services that you have used.

	Have not used	Not useful								Very useful
Face-to-face consultation with IT Help Desk	-	-	-	-	-	-	-	-	-	-
Telephone Consultation with IT Help Desk	-	-	-	-	-	-	-	-	-	-
Email request for help or service	-	-	-	-	-	-	-	-	-	-
Blackboard	-	-	-	-	-	-	-	-	-	-
SOLAR	-	-	-	-	-	-	-	-	-	-
USC Portal	-	-	-	-	-	-	-	-	-	-
Frequently Asked Questions (FAQ) section on University Website	-	-	-	-	-	-	-	-	-	-

40. **Please use the scale to indicate the value of any of the following Library services that you have used.**

	Have not used	Not useful							Very useful
Face-to-face consultation with library staff	-	-	-	-	-	-	-	-	-
Telephone Consultation with library staff	-	-	-	-	-	-	-	-	-
Email request for help or service	-	-	-	-	-	-	-	-	-
Library tutorials	-	-	-	-	-	-	-	-	-
Reserve material in the library	-	-	-	-	-	-	-	-	-
General collection in the library	-	-	-	-	-	-	-	-	-
Library catalogue	-	-	-	-	-	-	-	-	-
Library databases	-	-	-	-	-	-	-	-	-
Library webpage on University website	-	-	-	-	-	-	-	-	-
Facilities for my laptop	-	-	-	-	-	-	-	-	-
Facilities for group study	-	-	-	-	-	-	-	-	-
Facilities for quiet study	-	-	-	-	-	-	-	-	-

41. **Please use the scale to indicate the value of any of the following Student Services that you have used.**

	Have not used	Not useful							Very useful
Health and wellbeing	-	-	-	-	-	-	-	-	-
Counselling	-	-	-	-	-	-	-	-	-
Welfare or financial support	-	-	-	-	-	-	-	-	-
Off-campus accommodation	-	-	-	-	-	-	-	-	-
Buranga Centre support	-	-	-	-	-	-	-	-	-
Student Access support (e.g. monitored enrolment)	-	-	-	-	-	-	-	-	-
Disability support	-	-	-	-	-	-	-	-	-
Support with grievances and appeals	-	-	-	-	-	-	-	-	-

42. **Please use the scale to indicate the value of any of the following *careersconnection* services that you have used.**

	Have not used	Not useful							Very useful
Individual career planning	-	-	-	-	-	-	-	-	-
Career planning and job search workshops	-	-	-	-	-	-	-	-	-
CareerHub	-	-	-	-	-	-	-	-	-
Graduate jobs support	-	-	-	-	-	-	-	-	-
On campus employer contact (e.g. career fairs, information sessions)	-	-	-	-	-	-	-	-	-
Work Integrated Learning (WIL)	-	-	-	-	-	-	-	-	-
Post-graduate study selection assistance and counselling	-	-	-	-	-	-	-	-	-

43. **If you are an INTERNATIONAL student, please use the scale to indicate the value of any of the following services you have used.**

	Have not used	Not useful								Very useful
Direct English Entry Program (DEEP)	-	-	-	-	-	-	-	-	-	-
Pre-enrolment advice from USC International	-	-	-	-	-	-	-	-	-	-
Visa advice from USC International	-	-	-	-	-	-	-	-	-	-
International Foundation Pathway (IFP)	-	-	-	-	-	-	-	-	-	-
Pre-departure advice from USC International	-	-	-	-	-	-	-	-	-	-
Consultation with an International Student adviser	-	-	-	-	-	-	-	-	-	-
Consultation with an Academic Skills Adviser (e.g. English Language Support)	-	-	-	-	-	-	-	-	-	-
Academic Skills - Assignment writing @ USC course (offered in Weeks 1-6)	-	-	-	-	-	-	-	-	-	-
Library services and workshops for international students	-	-	-	-	-	-	-	-	-	-

44. **If you are an INDIGENOUS student, please use the scale to indicate the value of any of the following services that you have used.**

	Have not used	Not useful								Very useful
Consultation with Buranga Centre staff	-	-	-	-	-	-	-	-	-	-
Indigenous students' direct entry pathway	-	-	-	-	-	-	-	-	-	-
Indigenous students' orientation program	-	-	-	-	-	-	-	-	-	-
ITAS - Indigenous tutorial assistance scheme	-	-	-	-	-	-	-	-	-	-
National Indigenous Cadetship Program	-	-	-	-	-	-	-	-	-	-

45. **Please use the scale to indicate the value of any of the following Faculty of Business services that you have used.**

	Have not used	Not useful								Very useful
Consultation with a program or course adviser	-	-	-	-	-	-	-	-	-	-
Business Connection	-	-	-	-	-	-	-	-	-	-
Business Learning Connection	-	-	-	-	-	-	-	-	-	-
Business Library Connection	-	-	-	-	-	-	-	-	-	-
Student mentoring program	-	-	-	-	-	-	-	-	-	-
Business Central on Blackboard	-	-	-	-	-	-	-	-	-	-
In-class academic skills workshop (presented during lecture or tutorial)	-	-	-	-	-	-	-	-	-	-
Out-of-class academic skills workshop (provided by Academic Skills Adviser from Student Services)	-	-	-	-	-	-	-	-	-	-
In-class library tutorial (provided by library staff)	-	-	-	-	-	-	-	-	-	-
Library presentation provided at a lecture	-	-	-	-	-	-	-	-	-	-

47. Please use the scale to indicate which of the following services/activites you think it is important for the University to provide.

	Not useful							Very useful
On-campus cafes/eateries	-	-	-	-	-	-	-	-
On-campus bar	-	-	-	-	-	-	-	-
Weekly bands/music/entertainment	-	-	-	-	-	-	-	-
Weekly markets	-	-	-	-	-	-	-	-
University clubs and societies	-	-	-	-	-	-	-	-
Cultural celebrations on campus	-	-	-	-	-	-	-	-
Parking	-	-	-	-	-	-	-	-
Childcare services	-	-	-	-	-	-	-	-
Shuttle-bus services	-	-	-	-	-	-	-	-
Subsidised public transport	-	-	-	-	-	-	-	-
Recreational/sporting facilities	-	-	-	-	-	-	-	-

48. Did you complete this survey last year (in 2008)?

-

49. What have you found to be the best aspects of the services, facilities and support provided by this University?

50. What have you found to be the worst aspects of the services, facilities and support provided by this University?

51. What could be done to improve the services, facilities and support provided by this University?

52. My student number is

53. My contact details are

Enhancing the research-teaching nexus:

Building teaching-based research from research-based teaching

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Definitions and practical interpretations of the research-teaching-nexus are various, but almost invariably the link between teaching and research lies in the direction of transferring research into teaching rather than vice versa. This transfer is achieved by using research to inform teaching and, less frequently, by engaging students in research. Usually these students are final year undergraduates and the research project is purpose-built to develop in students the desired course learning outcomes. This paper reports an alternative realisation of the teaching-research nexus. It presents a case study of teaching that was informed by research and engaged both first year and final year undergraduate students in research, using problem-based learning. Subsequently, the research undertaken by the students as part of their learning process directly informed development of a large, government-funded research project, thus completing an unusual two-way relationship in which research underpinned teaching and learning activity, and teaching and learning activity underpinned research.

Keywords: problem based learning; research-teaching nexus; Business; research methods

Introduction

This paper presents a case study of the development of a research-teaching nexus in the context of two undergraduate business research methods courses in an Australian university, one first year course and one final year course. In both cases existing mathematics-based statistical analysis courses were transformed into problem-based learning courses that engaged students, in collaborative research groups, in the exploration of an authentic and ongoing research problem: 'What factors influence students' decisions to drop out of university?'.

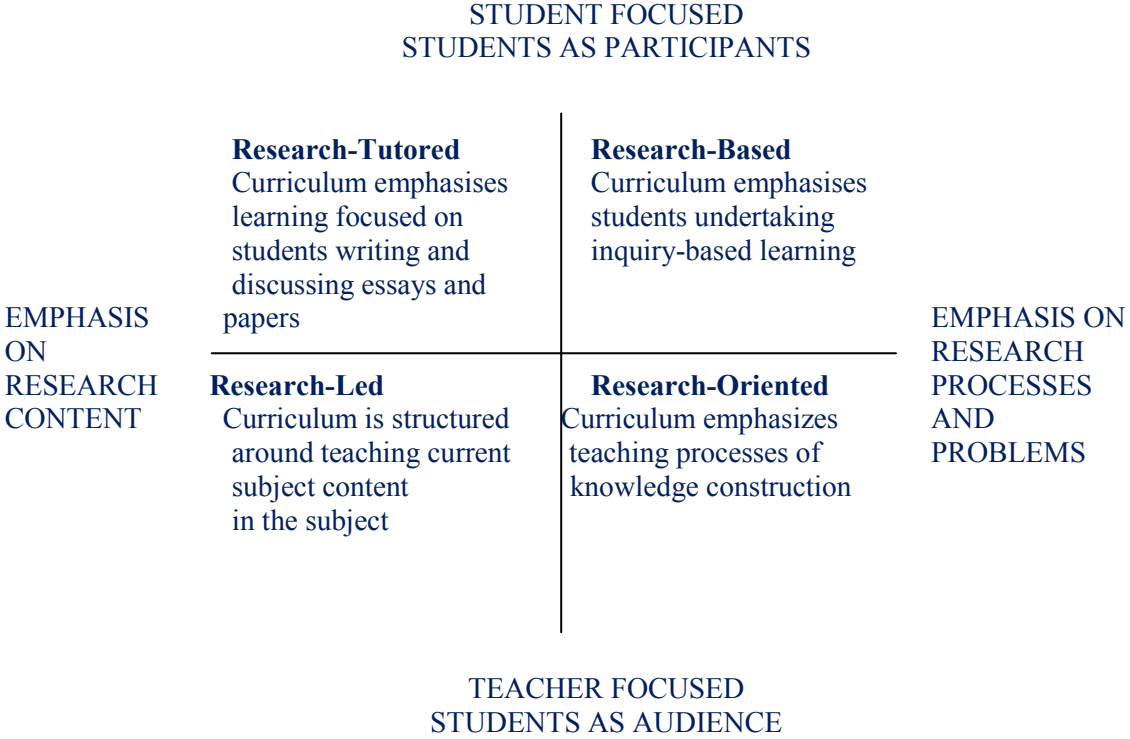
The paper begins with an overview of literature relating to the research-teaching nexus and to problem-based learning. Subsequently it describes the activities undertaken by the students and lecturer in the two courses transformed into problem-based learning courses, and the students' responses to the transformation. Next it details how, in a reversal of the usual process of feeding research into teaching/learning activities, teaching/learning activities fed directly into research and led to the gaining of a large government grant. Finally, the paper details evaluations of the transformed courses, presents reflections on the implemented research-teaching nexus and, on the basis of these, makes recommendations related to the implementation of a similar research-teaching nexus in other discipline areas.

Defining the 'research-teaching nexus'

Definitions and conceptualisations of the research-teaching nexus are numerous. (Hoddinott & Wuetherick, 2005, p. 32) describe 'a continuum between teacher-focused research-based course content and a student-focused research-based process of learning'. Similarly, in their discussion of 'research-led teaching', Holbrook and Devonshire (2005) describe the research-teaching nexus in terms of research-informed teaching (where disciplined-based research informs content) and research skills teaching (where students develop research skills). They add, however, the additional element of research-inquiry teaching (when academics use research to investigate the effectiveness of teaching and learning activities) which Griffiths (2004), in his conception of the research-teaching nexus, refers to as 'research-informed teaching'. Neumann (1994) also invokes an academic perspective on the research-teaching nexus, describing it as a multi-level relationship focusing on the global (i.e. collectively, departmental research interests provide direction, frameworks and a resource base for the courses offered students), as well as the tangible (i.e. teaching serves to disseminate research knowledge and skills) and the intangible (i.e. teaching serves to develop in students a critical approach to 'knowledge' and a positive attitude to learning).

McLean and Barker (2004), however, discover two dominant conceptualisations of the research-teaching nexus: one that emphasises the role of inquiry-based learning in enabling both researchers and students to build knowledge and negotiate meaning (see, for example, Brew, 2003), and one which emphasises curriculum design leading to the development of students' research capacity. This latter element is also present in Healey's four-quadrant schema of the research-teaching nexus (Healey & Jenkins, 2006), reproduced as Figure 1. It is this schema that will be used to describe the teaching and learning activities discussed in this paper because of its comprehensive inclusion of the elements of student learning activity present in other conceptualisations of the research-teaching nexus. It should be noted that 'often the most effective learning experiences involve a combination of all four approaches, but ... the emphasis should be placed on the student centered approaches in the top half' (Healey & Jenkins, 2006, p. 48)

Figure 1
Curriculum design and the research-teaching nexus



Achieving a research-teaching nexus

Intriguingly, while strongly advocating the integration of research into teaching, many of the authors of papers on the research-teaching nexus acknowledge empirical research findings such as those of Hattie and Marsh (1996) which point to the lack of reciprocal relationship between teaching and research (e.g. Neumann, 1994; Griffiths, 2004; McLean & Barker, 2004). It has been argued, however, that such findings are an artefact of the research method used (Verburgh, Elen, & Lindblom-Ylänne, 2007) or of a misinterpretation of the research proposition (Prince, Felder & Brent, 2007), for there is direct evidence to indicate that students themselves value the linking of research with teaching (Robertson & Blackler, 2006; Turner, Wuetherick, & Healey, 2008), as long as this does not lead to the hijacking of the curriculum by the lecturer's personal research interests (Neumann, 1994; Turner et al., 2008). Both administrators and academics argue for the value of the research-teaching relationship in terms of maintaining content currency and achieving competitive advantage in the recruitment of high quality postgraduate students (Taylor, 2007; 2008), and some academics also argue that the integration of research into teaching enables them to try out new research ideas (Griffiths, 2004; Robertson, 2007). In general, this academic-student sharing of ideas is perceived to occur most readily in the teaching of postgraduate students (Smeby, 1998), although Neumann (1994) and Robertson (2007) provide examples of such sharing at undergraduate level, particularly with students in the later years of study and in social science or humanities courses.

Generally, the achieving of a research-teaching nexus in undergraduate teaching involves academic control over content and learning tasks, i.e. in Healey's terms, research-led and research-oriented curriculum design (Healey & Jenkins, 2006). However, as Lips' (1999), Weatherall's (1999) and Robertson's (2007) discussion exemplifies, when the research-teaching nexus is enacted through a research-based curriculum design by engaging students in problem-based (or inquiry-based) learning, students potentially become co-learners and co-researchers with the academic. In this case, the academic implicitly or explicitly cedes control over the learning process, allowing students to make 'mistakes' and follow avenues of inquiry - as do academic researchers - that may ultimately lead in the wrong direction or to a dead end. This aspect of task and process authenticity contains inherent problems for students who seek certainty or look for their learning to be guided by an 'expert'. It also poses problems for academic staff whose performance is often evaluated by students in terms of the perceived clarity of task and desired outcomes.

Implementing research-based teaching through problem-based learning

Problem-based learning (PBL) is a student-centred teaching approach that has its roots in cognitive learning psychology and constructivism (Dewey, 1916; Piaget, 1954; Vygotsky, 1978). It reflects the constructivist assumption that learning inevitably involves the personal construction of knowledge, enacted through social and collaborative learning processes involving realistic and authentic tasks (Draper, 2002; Barrell, 2007).

In PBL, student work is generally organised around a complex, ill-structured problem that may not necessarily have any one correct solution, i.e. a 'messy' problem (Torp & Sage, 2002, cited in Savery 2006) that invokes multiple reasoning paths and multiple solutions Jonassen, 1997). The problem itself functions as 'a content and knowledge organizer, learning environment contextualizer, thinking/reasoning stimulator, and learning motivator' (Hung, 2006, p. 56), especially in courses previously characterised by a lack of student interest (Mykytyn, Pearson, Paul, & Mykytyn Jr, 2008). Weiss (2003, p. 25) notes, however, that a poorly designed problem - far from inspiring learning - may act only as the catalyst for 'a scavenger hunt for information from resources' provided by the teacher.

Although PBL is usually combined with some traditional teaching approaches such as lecturing - and is arguably more effective when it is (Barraket, 2005) - the problem is ideally presented before course content and tools are made available. In a learning environment characterised by discussion and peer

interaction (Hmelo-Silver, 2004), students collaboratively strive to locate relevant information and solve the problem at hand. The role of the academic is to facilitate learning rather than 'transfer knowledge', and to provide guidance and information, often on a just-in-time basis, and increasingly through the use of electronic communication tools (Hunt & Tyrell, 2000; Van Rooij, 2007). Despite perceptions that PBL involves little or no guidance of learning (Kirschner, Sweller, & Clark, 2006), a significant time commitment to preparation, management and ongoing evaluation of learning is required to achieve the high level of scaffolding that is critical to the success of PBL (Simons, Klein, & Brush, 2004; Hmelo-Silver, Duncan, & Chinn, 2007; Oliver, 2007). Ironically for the academic from whom so much more time is taken to build a research-teaching nexus using problem-based learning, the act of teaching usually becomes less visible to students than it would have been had s/he simply delivered research-led lectures.

Enacting the research-teaching nexus in undergraduate classes: a case study

Problem-based learning in year three – the existing course

In the small regional university that is the focus of this case study, *Advanced Research Methods* is a semester 1 compulsory course for all undergraduate third year marketing students and an optional course for other undergraduate students in the Faculty of Business. Its long-term goal is to provide graduates with the skills to conduct research in the business world. Its short-term goal is to provide marketing students with the skills necessary to work in small groups and complete a research consultancy for a local organisation in the following semester. The course spans 13 weeks, comprises 25% of a full-time student load, and involves students each week in a two-hour lecture, a one-hour tutorial, and a one-hour computer laboratory. To gain entry into the course students are required to perform at least at Credit level (65% or higher) in their first year introductory course *Applied Research Methods*.

In its original form, prior to the revisions described here, instruction in *Advanced Research Methods* was heavily concentrated upon the mathematics of statistics. Three textbooks were used - a univariate statistics text (Hair, Anderson, Tatham, & Black, 1998), a multivariate statistics text (Argyrous, 1996), and a guide to the SPSS statistical software package (Coakes & Steed, 2001) – as well as a 416 page book of selected readings. Assessment comprised mid-semester (15%) and final (50%) exams and two assignments (15% and 20%) in which students were provided with 'dummy' data sets and required to conduct and write up appropriate statistical analyses.

Despite being a demanding course, many students performed very well in *Advanced Research Methods*. Upon its completion they had the skills to analyse quantitative data using univariate and multivariate techniques, yet when they undertook their research consultancy the following semester they often made naïve mistakes such as poor choice of variables to represent the concepts they hoped to measure, and poor choice of measurement scales which made analysis of data difficult.

In its last year of traditional presentation, 38.96% of *Advanced Research Methods* students achieved a final grade of Credit or higher. At the same time, however, a large proportion (37.66%) of students failed the course, including 18.42% of students who, although still formally enrolled, dropped out and did not attempt to sit the final exam.

Problem-based learning in year three – the revised course

The goals for the transformation of *Advanced Research Methods* into a PBL course were, first, to increase the engagement of students with the course - particularly less able students - in an effort to reduce both the drop-out and failure rates and, second, to provide students with more practical research skills. The nexus between teaching and research was to be achieved not just through a research-based curriculum (i.e. problem-based learning), but also through a research-led approach which saw relevant examples from the academic's own organisational climate research included in lectures and the use of a book of readings which included several of the academic's papers illustrating

the application of different statistical techniques. Through use of a textbook co-written by the academic (i.e. Manning & Munro, 2006) instead of the previous three texts, the curriculum also reflected a research-oriented approach aimed at developing simultaneously in students a theoretical understanding of survey data statistical analysis as well as the practical capacity to use SPSS to analyse data.

Concurrent with the course transformation, within the Faculty a small group of academics (including the academic teaching the course) were discussing the possibility of applying for a teaching grant focusing on student retention and attrition. The value of student input into such a project was recognised, and thus it was decided that the problem at the core of the curriculum should be 'What factors influence students' decisions to drop out of university?' This problem not only met the condition of authenticity, but it was also a 'messy' problem. It also seemed likely to engage students' interest, challenging them to weigh relevant literature against personal experience when developing research constructs. This research question was presented to students at the end of the first, introductory, lecture.

The problem-based learning activity spanned two stages: Stage 1, design of the study; and Stage 2, quantitative data gathering and analysis. In Stage 1, the 91 students undertook literature searches and ran focus groups in tutorials (choosing students from amongst them to act as focus group moderator and recorder). Building on these preliminary activities, in small groups they identified relevant concepts, developed conceptual frameworks and operationalised the concepts as measurable questionnaire variables. In an individual assignment (worth 20%) each student reported on these concepts and frameworks and consequent hypotheses. In whole group discussions questionnaire items devised in small groups were selected or rejected for inclusion in a single questionnaire. In Stage 2 students used hard copies of this questionnaire to gather data, and then entered the data into SPSS files which the academic aggregated into a single SPSS file and posted on Blackboard. Students then individually decided upon the analyses required, conducted the analyses using SPSS and individually wrote up the results of their analysis as their second assignment (worth 30%). At the end of the course students completed an examination (worth 50%).

Throughout the course, communication between the academic and all 91 students took place online via Blackboard, as well as in lectures and tutorials. Tutorials and Blackboard represented environments within which possibilities could be explored – in small groups in tutorials, and with the whole group via Blackboard. Lectures represented environments for information gathering and whole group decision-making. On Blackboard students could post, for example, themes or concepts identified in the focus groups or academic literature, details of relevant articles, competing models describing relationships between concepts, or details of instruments available to measure identified concepts. In each two-hour lecture during Stage 1 the last 30 minutes were devoted discussion and democratic resolution of issues relating to project design, such as concepts to be measured, the model to be tested, the instrument/items to be used, the population from which the sample would be selected, and the logistics of data collection.

In Stage 1, each week the academic 'drew a line in the sand' and specified which issues needed to be resolved by the end of that lecture. One of the earliest sets of issues resolved related to the concepts to be measured and the model specifying the relationship between those concepts. Two models, both with strong support, had been posted onto Blackboard. In the lecture, arguments were presented to support both. The issue was resolved via a show of students' hands. The outcome was viewed as 'less than satisfactory' by some who had supported the alternative position and at least one student commented to the academic that he would withdraw from the course because of the model chosen (he didn't).

Throughout the process students were allowed to make both good and poor decisions. For example, in the lecture when the group decided how each concept would be measured, the students had agreed upon the questionnaire items that were to be used to operationalise the research concepts and were

satisfied they had completed this part of the design process. It was not until it was brought to their attention by the academic that anyone in the group realized that they hadn't worked out how to measure their most important concept and the focus of the whole study - student retention. The academic's suggestion that his research involving employee turnover intention might provide some clues as to how to measure student retention (amongst students still enrolled) led eventually to students including in their questionnaire an item that required students to respond to the statement "I am likely to leave this university within the next twelve months", using a 7-point scale.

In another example, students voted to collect data within lectures for 'core' courses (introductory courses compulsory for all undergraduate students). This method was agreed upon – despite the fact that no student had thought to ask permission from the staff members teaching these courses - and the academic teaching *Advanced Research Methods* made no comment about the decision. In Stage 2 of the project, it was found that such permission would not be forthcoming and the students hurriedly made alternative arrangements.

Problem-based learning in year one – the existing course

Applied Research Methods is a 13-week, semester 2 course, compulsory for all undergraduate students in the Faculty of Business. Its goal is to develop basic business research skills.

In its original form the course used three textbooks (Cavana, Delahaye, & Sekaran, 2001; Coakes & Steed, 2001; Voelker, Orton, & Adams, 2001), and focused on the mathematics of statistics using a traditional lecture-tutorial format. Assessment comprised a literature review and short answer questions (20%), tutorial participation (10%), two assignments (15% each) in which students were provided with 'dummy' data sets and required to conduct and write up specified statistical analyses, and an exam (40%).

The course was pitched at a low level, mostly requiring students to perform basic calculations following patterns set by the teacher. Implicitly it was assumed that these activities would develop in students the required conceptual understanding of research methods. Although over a third of all students usually received distinction or high distinction grades in the course, these students often did not in subsequent courses demonstrate the capacity to apply appropriate research methods or adequately critique empirical research.

Problem-based learning in year one – the revised course

The revision of *Applied Research Methods* was designed to develop students' conceptual understanding so that graduates of the course would be able to choose and use appropriate research methods and statistical analyses, rather than just perform calculations and conduct specified analyses. The revision resulted in a course that, like the more advanced course, challenged students to develop conceptual frameworks and hypotheses and engaged them in data collection and analysis. However, it used a modified, more overtly guided, less-collaboratively-based, form of PBL to achieve this. Although students were asked to grapple with an authentic problem and their activity led to development of a questionnaire designed to address the problem, they were not asked to cooperatively decide upon and resolve all issues associated with researching the problem.

As with the third year group, the 229 first year students were given the question 'What factors influence students' decisions to drop out of university?' They too conducted focus groups in tutorials to gather peer responses to this question, and in tutorials each student also conducted an in depth interview on this question with another student. In tutorials rather than developing their own research methods and procedures, however, students were provided with potentially relevant conceptual frameworks and analysis options. Guided by an academic, in groups students discussed and debated the merits of these and their relevance to the given problem. Each student subsequently submitted a qualitative analysis of focus group content and their interview data, a resultant set of hypotheses, and a one page questionnaire designed to quantitatively investigate the issues raised in the focus groups and interview (worth 20%).

Using the students' focus groups analyses, hypotheses, and questionnaires, as well as academic literature on retention and attrition as a foundation, the academic teaching the course constructed a questionnaire which all *Applied Research Methods* students completed during a lecture. This questionnaire data, collated by the lecturer, was then given to students to analyse. Their report on this analysis formed part of the course assessment (30%), with the remaining assessment marks allocated to tutorial participation (10%) and an exam (40%).

Evaluating impacts of the research-teaching nexus – student and staff outcomes

Student outcomes

The introduction of PBL and other aspects of the research-teaching nexus was accompanied by dramatic changes in student grades in both courses (Tables 1 and 2). In the third year course, the proportion of students failing fell from 37.66% to 18.68% and the proportion of students who did not sit the final exam fell from 18.18% to 8.79%, yet there was no increase in the proportion of students receiving High Distinctions (1.30% to 1.10%) or Distinctions (15.58% to 12.09%). The proportion of students receiving a grade of Credit or higher, remained relatively stable pre- to post-implementation of the PBL course, rising only from 38.96% to 41.76%.

Table 1: Student Results MKG301 *Advanced Research Methods*, 2005 and 2006

	2005 (n=77)		2006 (n=91)	
	Frequency	%	Frequency	%
Grades[1]				
High Distinction	1	1.30	1	1.10
Distinction	12	15.58	11	12.09
Credit	17	22.08	26	28.57
Pass	18	23.38	36	39.56
Fail	29	37.66	17	18.68
Breakdown of fails				
Didn't sit final exam	14	18.18	8	8.79
Completed all assessment	14	18.18	5	5.49

[1] Fail: < 50%, Pass: 50-64%, Credit: 65-74%, Distinction: 75-84%, High Distinction: 85-100%.

This pattern of results in the third year course arguably shows that the changes implemented served to make the course less intimidating (as evidenced by lower drop-out rate) and more comprehensible (as evidenced by the lower failure rate), without compromising academic standards by simply making the course easier.

In the first year course failure rates rose (25.37% to 32.32%) and the proportion of students receiving a Distinction or High Distinction dropped considerably (from 34.63% to 20.52%).

Table 2: Student Results BUS101 *Applied Research Methods*, 2005 and 2006

	2005 (n=205)		2006 (n=229)	
	Frequency	%	Frequency	%
Grades[1]				
High Distinction	22	10.73	6	2.62
Distinction	49	23.90	41	17.90
Credit	50	24.39	59	25.76

Pass	32	15.61	49	21.40
Fail	52	25.37	74	32.32

[1] Fail: < 50%, Pass: 50-64%, Credit: 65-74%, Distinction: 75-84%, High Distinction: 85-100%.

The reduction in high grades may be seen as an indicator of increased rigour in the course. In this context, the relatively small increase in the failure rate may be seen as a positive. It suggests that, despite the greater rigour, the PBL approach was effective in helping weaker students comprehend the course material.

Informally, it was clear to the academic teaching the courses that both first and third year students had engaged more effectively with subject matter typically perceived as difficult, and that they had enjoyed the opportunity to investigate a topic of direct relevance to them. Many were also pleased to have the ideas developed in the process of their learning fed back into the research on which their teacher was engaged. The value of their contribution was made manifest two years later when all Faculty of Business students were invited to complete a questionnaire that formed part of a national study on student retention and attrition, for which the group of academics who first devised the research problem had received a large government grant.

Additionally, two of the students involved in the third year course so enjoyed the experience that they opted to undertake an Honours year supervised by the academic teaching the course, and these two students are co-authors of this paper

Academic staff outcomes

Academic staff outcomes arising from the development of this research-teaching nexus took two primary forms: student evaluation responses, and the gaining of the large grant. Typically at the end of each course in this university students are asked to evaluate their teacher's performance, with the results of such evaluations used for the purposes of performance review and promotion. The summary of the results for *Advanced Research Methods* and *Applied Research Methods* for the year prior to the introduction of the PBL course and the year of the PBL course are provided in Table 3.

Table 3: Student Feedback on Teaching: MKG301 *Advanced Research Methods* and BUS101 *Applied Research Methods*, for courses in traditional and PBL form (responses on 5-point Likert-type scales)

	3rd year		1st year	
	Original	PBL	Original	PBL
1. The lecturer makes clear what I need to do to be successful in this unit.[1]	4.50	4.20	3.90	4.01
2. The lecturer is skilled at developing a class atmosphere conducive to learning.[1]	4.40	4.30	3.50	4.11
3. The lecturer has a good manner (eg friendly, helpful, enthusiastic).[1]	4.60	4.80	4.00	4.37
4. The lecturer shows appropriate concern for student progress and needs.[1]	4.00	4.10	3.70	3.70
5. The lecturer provides feedback that is constructive and helpful.[1]	3.90	4.00	3.70	3.52
6. The lecturer helps me to improve my understanding of concepts and principles.[1]	4.30	4.10	3.70	3.78
7. The lecturer structures and presents the unit in ways that help me to understand.[1]	4.30	4.10	3.60	3.82
8. The lecturer is knowledgeable in their subject area.[1]	4.70	4.70	4.50	*
9. The lecturer sets tasks that are useful as learning experiences.[1]	4.10	4.30	3.50	3.71

10. Overall, how would you rate the teaching of this lecturer in this unit?[2]	4.60	4.60	3.80	4.05

[1]1 = 'strongly disagree', 2 = 'disagree', 3 = 'neutral', 4 = 'agree', 5 = 'strongly agree'.
[2]1 = 'very poor', 2 = 'poor', 3 = 'satisfactory', 4 = 'good', 5 = 'very good'.
* item not included in survey

In the third year course, no dramatic changes were observed in response to any of the items and responses were stable for two items, including overall satisfaction. Slight improvements were found in responses to the items relating to the teacher's manner and the support provided, yet slight reductions were found in responses to items relating to course structure, clarity of concepts and objectives, and learning environment. This suggests that the uncertainty and reduction of teacher dominance associated with engaging students in a PBL research-based curriculum may, paradoxically, lead to improved student learning outcomes while potentially damaging academic staff outcomes. In the first year course, improvements were found in responses to almost all evaluation items, and particularly those relating to the effectiveness of the learning tasks, course structure and teacher's manner. Given these improvements, it seems likely that the more negative evaluation of the feedback provided reflects the academic's tendency to ask students further questions rather than provide the answers requested. Reductions in evaluation scores, such as those seen here, do not argue against the introduction of a research-based curriculum, but they do highlight the need for the gathering of student success data such as those presented in Table 1.

Beyond student evaluation outcomes, the unusual teaching-research nexus described in this case study underwrote a very positive outcome for the academic teaching the courses and his colleagues. The data gathered by third year students and the questionnaire completed by first year students were analysed and used in the construction and trial of an initial questionnaire which, several drafts later, became the questionnaire used to collect data for a national project on attrition and retention. This project was one of only 17 selected from 154 applications to receive a grant that year from the Australian Learning and Teaching Council (the peak national body for learning and teaching), and it was awarded funding of $219,877 to conduct research into attrition and retention and use that research to bring about changes in the seven project partner universities. The input of the undergraduate students involved in the research-based curricula was vital in giving focus to the research proposed in the grant application and it also enabled testing of a questionnaire, demonstrating the viability of the project and that progress had been made prior to the application for funding.

Conclusion: reflections and recommendations

The transformation of *Advanced Research Methods* and *Applied Research Methods* into research-based, PBL courses achieved many of the envisaged teaching and learning outcomes: desired changes to failure rates without lessening of the courses' intellectual rigour; in *Advanced Research Methods* naïve mistakes commonly made in the following semester market research consultancies were successfully brought forward and positive feedback on improved student performance was received from the coordinator of the market research consultancies; in *Applied Research Methods*, students dealt more effectively with notoriously difficult subject matter. The transformation also underpinned the success of academic colleagues in obtaining a large, national teaching grant.

From an academic's perspective, PBL involves a much closer engagement with students than does the traditional presentation of courses, and the implementation, management and assessment of PBL demands a significantly greater time commitment. Students interact more with their teacher, asking questions both face-to-face and through emails and postings on Blackboard. Although this additional interaction enables the academic to better understand how students are progressing, watching the slow movement of students through the process (particularly in Stage 1 of the advanced course) can also be emotionally taxing. Further, although PBL is not unguided teaching, this is not always appreciated by

students who may become critical of a perceived lack of support during the course and ultimately evaluate the course as lacking clarity of direction or structure or feedback – a potential negative staff outcome that needs to be addressed through systematic data collection. Nevertheless, in terms of learning outcomes, research-based teaching delivers significantly greater benefits to students. They not only gain knowledge but also learn to ask appropriate questions and subsequently apply what they have learnt even in complex or ambiguous circumstances.

In the case study presented, in an unusual two-way flow of activity, research-based teaching led to both improved learning outcomes for students and improved research outcomes for academic staff. Although the context of this research-teaching nexus case study is the teaching of Research Methods, the two-way process described may be adapted to any discipline in which student perspectives on a specific topic could productively inform development of a teaching or research grant application. For example, assessable documentation detailing students' strategies for thinking about, say, a physics or a history problem that forms part of a PBL course, could underpin a grant application for research into how to address the difficulties faced by students and required curriculum changes. Ultimately, the opportunity to 'double-dip' on the research-teaching nexus provides a powerful incentive for an academic to give the time required to develop effective research-based teaching.

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Appendix 8.3 Article to be published in
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Beyond the first year experience: the impact on attrition of student experiences throughout undergraduate degree studies in six diverse universities

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In the face of difficult economic circumstances, increased competition and student diversity, attrition and retention have become issues of great significance to higher education institutions seeking to survive. A large body of work has explored the relationship between attrition and the first year experience, but there has been little focus on students' experience of university in subsequent years despite the fact that later year attrition counts for approximately half of all attrition. This empirical research study examines students' experience of university in six diverse universities, across the three years of Business degree studies. It finds that the factors correlated with intention to withdraw from university studies are differentiated by year of study, and further differentiated by the university attended. The implications of these findings are discussed and a framework for institutional action is subsequently used to outline the dimensions of a relevant retention program.

Keywords: student experience; student support; academic at risk students; university dropout; Business schools

Theories of attrition

Research into attrition and retention highlights the pivotal role of both the student's personal background and the student's interactions with the institution. In some of the earliest attrition research, Tinto (1975, 1993) drew on causal theories of suicide to explain attrition primarily in terms of the student's failure to integrate into an institution's social and academic systems. This work has been criticised for its failure to recognise dropout as a positive for some students (e.g., Brunsden et al. 2000), for the limited attention paid to social integration in colleges which do not have residential campuses (Grayson 2003), and for its focus on institutional influences on attrition at the expense of external factors affecting individuals' decisions to withdraw (Cabrera, Nora and Castaneda 1993). Nonetheless it continues to command significant attention in the field of attrition theory and praxis, exerting influence over attrition-related discussion and research (e.g., Branxton 2000). The simplicity of its underlying structure – which theorised attrition to be attributable to student commitment (institutional and goal), expectations, and involvement – has made it a useful tool for those seeking to investigate attrition (e.g., Georg 2009, whose results confirm the importance of commitment) and for those seeking to create an environment leading to increased retention.

Bean's (1980) alternative model of student attrition, argued for a different balancing of the organisational and personal/external factors influencing attrition. Using theories of organisational turnover as a starting point, Bean theorised attrition to be a consequence of background variables (student prior academic performance; socioeconomic status; place of residence; distance from parental home; size of hometown) and organisational determinants (student perceptions of: repetitiveness of study; personal development opportunities; degree's practical value; opportunity cost of study; institutional quality; communication about requirements; fairness of treatment; helpfulness of advice; participation in decision-making; as well as student GPA, major, goal commitment, staff and student

relationships, work commitments, housing; and involvement in campus activities). Later work by Bean (Bean and Metzner 1985) saw an expansion of focus to address the distinctive characteristics of 'non-traditional' students (i.e. those who did not come as full-time students, direct from school) and the personality variables underlying retention (Bean and Eaton 2001).

Cabrera, Nora and Castaneda (1993) acknowledge the value of both Tinto's (1975) and Bean's (1980) work, finding significant commonalities in the two frameworks, with differences primarily related to the perceived influence of external factors on students' departure decisions. Nonetheless, the number and nature of the variables in Bean's (1980) model of student attrition make it difficult to identify and capture the significant interactions between personal and institutional variables and thus militate against its usefulness as a tool for identifying and implementing necessary organisational change. By contrast, over time Tinto's work has come to incorporate greater recognition of what the student brings to the attrition/retention equation (Tinto 1993) and what specific actions an institution needs to take to promote retention (Tinto and Pusser 2006). Tinto's concepts of academic and social integration – facilitated by student and institutional commitment, expectations, feedback, support, and engagement (Tinto and Pusser 2006) – offer clear focal points for those seeking to increase retention, and resonate with the findings of other researchers investigating the causes of attrition and the correlates of retention.

Attrition and retention beyond first year

As Tinto (1993) and many others (e.g. Department of Employment, Science and Technology Strategic Analysis and Evaluation Group 2004; G. Johnson 1994) have noted, first year students are the group at greatest risk of attrition from colleges or universities. For first year students, research indicates attrition is particularly related to prior academic performance and/or GPA (French, Immekus and Oakes 2005; Gilbert and Evers 1989; I. Johnson 2008; Murtaugh, Burns and Schuster 1999; Scott et al. 2008), academic integration, including student development and willingness to discuss learning tasks with academic staff or other students (Cox et al. 2005; Hoffman et al. 2002; Lohfink and Paulsen 2005; Pascarella and Terenzini 1983), social comfort and involvement (Hoffman et al. 2002; Nicpon et al. 2006; Pascarella and Terenzini 1983; Rayle et al. 2006) academic and psychological readiness (Long, Ferrier and Heagney 2006; Peel, Powell and Treacey 2004), and conflicting work commitments (Long, Ferrier and Heagney 2006; Queensland Studies Authority 2004), which may arguably reflect financial need and/or ambivalence about commitment to study. The only empirical studies of factors underpinning attrition from Business faculties that could be located (Cox et al. 2005; Tom 1999) indicate that financial difficulties are an important influence upon attrition.

First year attrition, however, only represents approximately half of all attrition (Department of Employment, Science and Technology Strategic Analysis and Evaluation Group 2004; G. Johnson 1994; Pattengale 2000; Wintre et al. 2006). Given this, there has been surprisingly little attention paid to the factors influencing attrition in later years. Consequently, as Pattengale and Schreiner (2000, p. vi) observe, 'institutions may be on the road to reducing first-year attrition, but without providing ongoing programs, services, and support to sophomores [second year students], efforts seem to be only postponing the inevitable until the end of the sophomore year'. The work of the few researchers who have investigated later year attrition and retention suggests that factors influencing later year attrition may be significantly different from those influencing first year attrition.

G. Johnson (1996), investigating faculty differences in withdrawal in a Canadian university, found that Science students were most likely to withdraw from first year, whereas Arts and Education students were most likely to withdraw from their second year of studies. In a large national U.S.A. study involving ratings of importance and satisfaction by first, second, third and fourth year students, Juillerat (2000) found that sophomore (second year) students are similar to other students in the aspects of college that they consider most important, but that they are differentiated in the levels of dissatisfaction they express about staff approachability and concern, feedback, and administrative processes, suggesting that these are issues of greater significance to them than to students in other

years. Graunke and Woosley (2005), in a study of sophomore success factors in a largely residential U.S. public university, found significant correlations with grade point average (GPA) for commitment to major and interactions with academic and administrative staff interactions, findings which largely parallel those of Juillerat (2000).

Mohr, Eiche and Sedlacek (1998), through interviews with returning and non-returning students in a U.S. public university, found the principal reasons given for withdrawal were financial problems, transfer to another university, academic difficulties, family responsibilities, personal problems, and poor advising or teaching, but thematic analysis identified four key dimensions leading to dissatisfaction: institutional alienation (e.g., feeling uncared for), dissatisfaction with guidance and access to information, dissatisfaction with quality of education, and dissatisfaction with policies and facilities. In a small study conducted within the Arts Faculty of an Australian university, Peel, Powell and Treacey (2004) found that later year students were more likely to report course dissatisfaction as a key factor in withdrawal, contrasting with the issues of transition, commitment and motivation and integration reported by first year students.

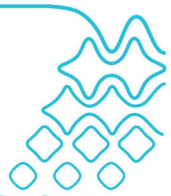
In summary, it would appear that later year withdrawals may be more influenced by consideration of institutional factors relating to the quality of interactions with academic and administrative staff, feedback processes, teaching quality, course advice, and university policies and facilities, than their first year peers. Attrition in first year, by contrast, seems to be based somewhat more in personal factors related such as a student's inability to integrate into university social or academic systems, lack of goal commitment (expressed in terms of course choice, career direction and study/work balance) or lack of academic preparation. This is not to say that institutions should absolved of responsibility to address first year attrition or that there is no institutional component to first year departure decisions, for there clearly is. However, it does suggest that that retention programs may need to be specifically targeted to meet the needs of later year students and, in so doing, focus on a different set of change strategies.

Attrition and retention across universities

Suggestions about developing retention programs targeted to year of study imply a commonality of year-of-study experience across universities. Implicit assumptions of such commonality also underlie many of the national and multi-institution studies that have been used to inform retention practices (e.g., Coates 2007, 2008; Krause et al. 2005; Long, Ferrier and Heagney 2006; Queensland Studies Authority 2004). Although they often acknowledge institutional demographic differences, they present collated data that obscure such differences, as noted by Pitkethly and Prosser (2001) and by Tinto (1993, p. 36):

> While it is true that such multi-institutional studies can be quite revealing of the aggregate patters of departure from the enterprise as a whole and of the manner in which individual and institutional attributes may be associated with those patterns, they are of little use to either researchers or policy planners concerned with the character and roots of student departure from specific institutions.

Thus, in this investigation of the relationship between the factors associated with intention to leave in first year and subsequent years of study results are presented - by year of study - for each of the six participating institutions. The consequences of the results for the design of retention programs are subsequently addressed, with reference to the categories of institutional action defined by Tinto and Pusser (2006) - commitment, expectations, support, feedback, and involvement (also described as engagement).



Method

The research to be described was conducted over a two year period (2008 and 2009) in six of the 36 public universities in Australia, all of which offer degrees in Business. The six universities represent the four university affiliation groups within Australia, plus one unaligned university, and they were chosen to represent the diversity of Australian higher education. Four of the universities were urban, two were regional; one of the universities is the smallest in Australia, while another is one of the biggest. The demographic profile of students participating in the research in each of the six universities is presented in Table 1.

Table 1: Demographic profile of Faculty of Business participants in research

Demographic characteristic	University 1 %	University 2 %	University 3 %	University 4 %	University 5 %	University 6 %
Male	40	34	31	50	31	33
Full-time student	82	83	58	92	71	90
School to uni gap < 2 years	67	71	51	93	64	76
First in family to attend uni	52	46	49	34	43	50
International student	14	30	30	35	20	50
Median hours paid employment	12	12	15	5	14	14

Participants

Participants in this research were a total of 5211 students in the six universities who, in semester one 2008 or semester one 2009, were in their first year, second year, or third (and final) year of undergraduate Business degree studies. The participation rate was generally at least 10 per cent of eligible students and, in each university, participant demographics broadly reflected faculty and university demographics. Response rates varied from institution to institution and year to year, with the highest response rate 28.4 per cent and the lowest 7.9 per cent in a given year. For reasons discussed in the following data analysis section, the responses of some students were excluded from data analysis, leaving a total sample of 4361, comprising 2336 first year students, 1129 second year students, and 896 third year students.

Measures

Data were collected from students using a seven-point Likert scale to respond to 70 items. These items formed part of the Whole of University Experience questionnaire, which had been developed through rigorous testing over a two year period by seven universities involved in a nationwide collaborative project funded by the Australian Learning and Teaching Council. Invitations to take part in the research were issued via email, by announcements posted on electronic learning management systems, and by lecturers who incorporated in their teaching materials a slide publicising the questionnaire. Questionnaire completion was voluntary and also anonymous unless the respondent chose to provide contact details enabling a possible follow up interview.

Data analysis

Factors associated with intention to leave were ascertained by correlating responses to the 70 questionnaire items with responses to an additional item asking students to 'Please rate the likelihood of the following: I am likely to leave university before completing a degree', which required respondents to choose a point on a seven-point scale ranging from 'certain to leave' to 'certain to stay'. It should be noted that intention to leave or intention to stay has been found by several

researchers to strongly predict actual departure or persistence (Bean and Metzner 1985; Eaton and Bean 1995; Sandler 2000; Summers 2003).

A further refinement of the data was achieved by dividing the total sample into two groups: those who had responded 'no' and those who had responded 'yes' to a question asking 'Do you intend to change to a different university in the future?' Research literature suggests that the characteristics of students who withdraw from studies altogether and those who transfer may be quite different (Rummel et al. 1999; Herzog 2005), and thus it was decided to exclude from the sample used for the analysis reported in this paper the group of students who had responded 'yes' to the question about intention to transfer.

Subsequently, Spearman's rho was used for data analysis. Spearman's rho was chosen because the responses to the 70 questionnaire items and the item exploring intention to leave were on ordinal scales, and the data obtained failed the assumption of normality in that responses to the intention to leave item were expected to be strongly skewed toward the 'certain to stay' end of the scale.

As anticipated, calculated correlation coefficients conformed to expectations associated with the social sciences, where a correlation coefficient of 0.3 is a medium sized effect and a correlation coefficient of 0.5 is a large effect (Danaher, Bowser and Somasundaram 2008). No one of the 70 items could have been expected to explain a large proportion of the variance, for two reasons: 1) For an individual student, the decision to leave is often the consequence of an accumulation of many factors, each providing a small contribution; and 2) the magnitude of the correlation relates to its capacity to explain all the variance for the group in the sample. Thus, even though for specific individuals one particular factor might explain a large part of their decision, across the sample different factors will be differentially important to different people and so will not explain a large proportion of the variance for all people.

Finally, each of the 70 questionnaire items was allocated to one of the five major categories in Tinto and Pusser's (2006) framework for institutional action – commitment, expectations, support, feedback and involvement. Categorisation of each item under one of the five categories was achieved by clustering sets of factors identified through a principal component analysis. A principal component analysis, followed by a varimax rotation was conducted on the responses of 5246 students to the 70 questionnaire items. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO=0.93) was greater than 0.6 and Bartlett's Test of Sphericity was significant (χ^2=91091.929, p<.000) indicating principal component analysis was appropriate for the data set. The analysis extracted 15 components, accounting for 54.25 per cent of the total variance. Using a minimum criterion of .3 for interpretation of factor loadings, thirty nine items loaded on only one factor, 24 items loaded on two factors, four items loaded on three factors and three items loaded on no factors. Given the nature of the data and the previous observations about multiple factors determining intention to leave, the loading on more than one factor by some items was not unexpected. The factors are listed below, and the items comprising them are indicated in Table 1.

The factors are:

1. Support for learning and expectations of teaching
2. Commitment: to institution and to learning
3. Expectations: facilities
4. Commitment: to course
5. Commitment: of time
6. Advising
7. Academic confidence
8. Wellbeing
9. Student interaction
10. Engagement: academic
11. Financial issues

12. Reputation
13. Engagement: social
14. Travel
15. Teacher enthusiasm.

Following the principal component analysis, the 15 components and the questionnaire items comprising these were inspected and clustered under the five categories in the following ways, with some factors clustering under more than one category because of the items comprising the factor:

- Commitment: factors 2, 4, 5
- Expectations: factors 1, 2, 3, 7, 14, 15
- Support: factors 1, 4, 6, 8, 11
- Feedback: factor 1
- Involvement: factors 9, 10, 13.

Results

First year attrition factors

Table 2 presents, for first year students at each university, Spearman's rho correlations between all 70 questionnaire items and the item investigating likelihood of leaving before completing a degree. The items are grouped according to the five categories from Tinto and Pusser's (2006) framework, with those items that are significantly correlated for the greatest number of universities being listed first within each category. The components (of the principal component analysis) to which the items relate are also listed, with bold used to indicate the predominant components in each category.

Table 2: Spearman's rho correlations between aspects of university experience and the likelihood of leaving before completing degree studies for first year students

Component	*Questionnaire item and category*	University *1* n=263	University *2* n=116	University *3* n=367	University *4* n=398	University *5* n=362	University *6* n=830
	COMMITMENT						
4	I have a clear reason for attending university	-.382**	-.448**	-0.02	-.188**	-.133*	-.201**
4, 15	I know the type of occupation I want	-.225**	-0.118	-.167**	-.143**	-.119*	-.116**
1, **4**	Overall I am satisfied with my experience at university	-.181**	-0.078	-0.041	-.210**	-.234**	-.146**
4, 10	I work hard at university	-.165**	-0.069	-0.042	-.105*	-.197**	-.151**
12	The reputation of your university is important when applying for a job	-.188**	-0.064	-0.028	-.157**	-.146**	-.129**
4	My courses are interesting	-.172**	-0.101	0.099	-.148**	-.106*	-.131**
2, **4**	I was able to enrol in the degree of my choice	-.136*	-.192*	0.015	-.125*	0.019	-.143**
5	I find it hard to manage my time effectively	.124*	0.14	-.125*	0.086	.105*	.110**
5, 8	My university workload is too heavy	.181**	0.086	.114*	0.051	.115*	.072*
2	I attended this university because I was not accepted by the university of my choice	.123*	.226*	0.056	0.087	-0.004	.084*
5	It is difficult to balance my social life and university	.123*	-0.047	-0.043	.127*	.109*	0.059
5, 11	It is difficult to balance work and university	0.088	0.056	-0.056	.174**	.240**	0.033
5	It is difficult to balance family and university	0.022	-0.008	0.041	.122*	.122*	0.059
2	I am attending this university as a stepping stone to another university	0.082	0.062	0.062	0.055	0.032	.113**
2	I am often homesick	0.093	0.104	0.066	-0.019	0.018	0.046
	EXPECTATIONS						
1, 6	I enjoy the intellectual challenge of what I am studying	-.185**	-.301**	-.164**	-.155**	-0.008	-.095**
1, 2	My teachers are approachable	-.178**	-.276**	0.075	-.222**	-.115*	-.103**
7	I have sufficient ability to succeed at university	-.246**	-0.115	-0.032	-.226**	-.173**	-.160**
1, **3**	I am satisfied with the status of my university	-.133*	-.242*	-0.073	-.205**	0.019	-.144**
	I need good analytical skills to do well in my studies	-.134*	-.221*	-0.061	-.138**	-0.087	-.069*
3	The university's IT resources are adequate for my learning needs	-.124*	-0.116	-.143**	-.169**	-0.082	-.101**
1, **3**	The library resources are adequate for my learning needs	-0.076	-0.03	-0.08	-.204**	-.168**	-.094**
3	I like the physical environment of the university campus	-.199**	-0.058	-.197**	-0.074	0.008	-.108**

Component	*Questionnaire item and category*	University *1* n=263	University *2* n=116	University *3* n=367	University *4* n=398	University *5* n=362	University *6* n=830
3, 13	The university facilities are adequate for my social needs	-.188**	-0.043	-0.046	-.148**	-0.077	-.093**
15	My teachers are enthusiastic about what they teach	-.140*	-0.163	0.022	-.172**	-0.072	-.142**
1, 2	Teaching staff make it clear from the start what they expect from the students	-.178**	-0.104	-0.066	-.162**	-0.092	-.095**
1, 3, 4	My teachers are generally good at explaining things	-.289**	-0.126	-0.039	-.125*	-0.095	-.143**
1, 2, 4	My teachers try hard to make the courses interesting	-.127*	-0.124	0.002	-.183**	-0.047	-.121**
1	My teachers incorporate real world examples into their teaching	-.132*	-0.112	-0.087	-.120*	-0.045	-.141**
7	I feel that my academic writing skills are adequate for my university studies	-.178**	-0.171	0.002	-.225**	-0.06	-.088*
1, **3**	The teaching rooms provide a high quality learning environment	-.131*	0.183	0.013	-.136**	-0.072	-.118**
	What I am learning at university builds on study I have undertaken in the past	-.127*	0.069	-0.012	-.121*	-0.032	-.091**
3	Class sizes at my university are too large	.147*	0.13	0.098	.114*	0.005	0.049
	The timetabling of my classes is convenient	-0.121	-0.032	0.049	0.001	-.128*	-.076*
3	The university facilities are adequate for my religious/cultural needs	-.203**	-0.15	-0.043	0.07	-0.045	-0.025
14	I find it easy to travel to university	-0.058	-0.155	-.121*	-0.06	-0.082	-0.065
3	I am satisfied by the work experience opportunities offered by the university	-0.108	-0.083	-0.105	-0.092	-0.057	-.075*
	SUPPORT						
4	The administrative staff are sensitive to the individual student needs	-.306**	-0.178	-0.064	-.168**	-.155**	-.207**
1	The teaching staff are sensitive to individual student needs	-.133*	-0.098	0.022	-.223**	-.121*	-.141**
1	It is easy to get help from teaching staff when I need it	-.264**	0.004	-0.021	-.209**	-0.088	-.113**
1	Teaching staff usually try to accommodate my needs	-.235**	-0.096	-0.016	-.196**	-0.039	-.107**
1	Teaching staff are usually available when I need them	-.242**	-0.17	-0.044	-.212**	-0.073	-.070*
1	My teachers make a real effort to understand the difficulties students may be having with their studies	-.182**	-0.039	-0.05	-.190**	-0.098	-.089*
1, 2, 6	It is easy to get help when I need it from administrative staff	-.137*	-0.147	-0.08	-.111*	-0.01	-.101**
11	I am worried about the debt I am accumulating while I am attending university	0.027	0.08	0.038	.123*	.148**	.080*
8	I am concerned about my emotional health	.137*	0.077	0.02	0.013	.108*	.100**
1, **6**	I have received good advice from the university about enrolment options in my degree	-.193**	-0.1	-0.087	-0.082	-.169**	0.015
6	I received good advice from a careers adviser at my university about choosing my degree	-.134*	0	0.066	-.130*	-0.072	0.009
11	I have financial problems	-0.018	0.035	0.069	.134**	0.052	0.046

Component	*Questionnaire item and category*	University *1* n=263	University *2* n=116	University *3* n=367	University *4* n=398	University *5* n=362	University *6* n=830
1	Other students are sensitive to the needs of students from different cultures	-.182**	-0.065	0.003	-0.063	0.014	-0.048
6	I received good advice from my school about choosing my degree	-0.026	0.058	0.056	-0.074	-.106*	0.025
8	I am concerned about my physical health	0.032	0.026	0.044	-0.032	0.063	0.037
1, 6	Administrative staff are usually available when I need them	-0.114	0.094	0.017	-0.017	-0.012	-0.043
	FEEDBACK						
1	I receive helpful feedback on assessment tasks	-.238**	-0.149	-0.003	-.152**	-.141**	-.116**
1	I receive prompt feedback on assessment tasks	-.187**	-.222*	-0.008	-0.065	-0.104	-.104**
	INVOLVEMENT						
1, **13**	I feel I belong to the university community	-.239**	-0.136	-0.056	-.178**	-.207**	-.068*
10	I come to class prepared	-.299**	-.194*	-0.114	-0.082	-0.046	-.138**
2, 5	I have had difficulty adjusting to the style of teaching at the university	.156*	-0.07	-0.019	.172**	0.068	.074*
2, 5, 7	I find it difficult to comprehend a lot of the learning material	0.077	.221*	0.012	.102*	0.04	.103**
2, **13**	I find the university to be a lonely place	.176**	0.174	0.002	.200**	0.064	0.052
2, 14	I have had a bad experience with a university teacher	-0.059	0.186	-0.02	.166**	0	.091**
1, 2, **10**	I regularly seek advice from my teachers	-.201**	-0.171	-0.03	-0.095	-0.094	-.087*
2, **10**	I don't attend classes if notes and materials are on the website	0.117	0.058	0.13	0.092	.130*	.148**
2, **10**	I frequently skip class	0.077	0.026	0.043	0.092	0.083	.151**
10	I participate in class discussions	-0.087	-0.167	-0.08	-0.005	-0.044	-.114**
9	I enjoy the opportunity to interact with students from different cultures at university	-0.05	-0.159	0.055	-.116*	-0.018	-0.057
9	Having a mentor at university would be useful	-0.02	0.05	-0.098	-0.004	0.011	-.108**
5, **10**	I have difficulty understanding the accents of some of my teachers	-0.033	-0.082	-0.041	.101*	-0.088	0.01
2, **9**	In groupwork I prefer to work with people from different cultures	0.023	-0.103	-0.027	-0.097	-0.022	-0.053
2	To do well at university all I need is a good memory	0.044	0.061	-0.041	0.077	0.097	0.055

*p<.05 **p<.01 (two-tailed)

Many of the items categorised under 'commitment' are significantly associated with the likelihood of leaving in first year. Indeed, having a clear reason for attending university and knowing the type of occupation wanted are significantly associated with a lower likelihood of leaving at five of the six universities in the sample. The majority of the other items in this category are significantly associated for at least three of the universities. These results indicate that, as predicted by Tinto's (1993) and Georg's (2009) research, commitment to the institution and/or degree as well as commitment of time are key factors influencing the retention or attrition of first year students.

The majority of items categorised under 'expectations' are also significantly associated with likelihood of leaving for students in at least three of the six universities, with the approachability of teachers being a significant factor in five of them. Students' expectations of teaching and support for learning, and their own level of academic confidence, are significantly associated with intention to leave during first year. First year students are also sensitive to learning facilities and social facilities perceived as inadequate, perhaps in comparison to what many have experienced in secondary school.

Nine of the 16 'support' items are significantly associated with intention to leave in at least three of the six sample universities. The perceived support for learning and help in making appropriate choices – expressed in terms of sensitivity of teaching and administrative staff to individual student needs - appears to be particularly important. Although issues of personal wellbeing, finances and quality of advising also assume some importance for first-year students in some universities, in general the data demonstrate first year students' primary sensitivity to interpersonal interactions with administrative and teaching staff, with concern focussing on issues of availability and empathy.

The level of support for learning provided through feedback on assessment tasks is significantly associated with intention to leave in four of the six sample universities. 'Involvement' appears less important to retention than commitment, expectations, support and feedback, as only four of the fifteen items categorised under this heading are significantly associated with likelihood of leaving in at least three universities. However, these items capture social engagement, academic engagement, and commitment to learning, issues which Tinto (1993) highlights as critical to integration. The actual behaviours associated with disengagement in first year appear to be largely university specific.

Overall, our results support those found in prior research in the areas of academic and psychological readiness (Long, Ferrier and Heagney 2006; Peel, Powell and Treacey 2004) and academic integration (Hoffman et al. 2002; Lohfink and Paulsen 2005; Pascarella and Terenzini, 1983). However, compared with previous findings, in the majority of these six universities the association between first year student expectations of the institution and intention to leave is found to be surprisingly strong. While this result supports Tinto and Pusser's (2006) model as a suitable framework for institutional action it suggests that, in a world where education is increasingly seen as a consumer commodity, their definition of 'expectations' needs to be reinterpreted so that it relates not just to academic expectations of students but also to student expectations of the educational experience that will be provided for them. Principal components analysis of the 70 questionnaire items supports this broader interpretation of 'expectations'.

Second year attrition factors

Table 3 presents, for each university, significant correlations for second year students between questionnaire items and the item investigating likelihood of leaving before completing a degree. Although significant correlations were found for 38 of the 70 questionnaire items, to achieve economy of presentation and better highlight issues of general import, only those items which are significantly correlated with intention to leave in at least two universities are listed.

Table 3: Spearman's rho correlations between aspects of university experience and the likelihood of leaving before completing degree studies for second year students

Component	*Questionnaire item and category*	University *1* n=115	University *2* n=85	University *3* n=163	University *4* n=213	University *5* n=201	University *6* n=352
	COMMITMENT						
4	I have a clear reason for attending university	-0.185	-.433**	0.076	-.247**	-.185*	-0.097
4, 15	I know the type of occupation I want	-.241*	-.234*	-0.029	-0.091	-0.07	-0.074
1, **4**	Overall I am satisfied with my experience at university	-.274**	-0.081	-0.035	-0.132	-.154*	-0.089
4, 10	I work hard at university	-0.178	-0.088	0.028	-0.052	-.253**	-.126*
2, **4**	I was able to enrol in the degree of my choice	-0.054	-.222*	0.027	-.160*	-0.089	-.152**
5, 8	My university workload is too heavy	.228*	.221*	0.102	0.125	0.029	0.052
	EXPECTATIONS						
7	I have sufficient ability to succeed at university	-.336**	-.374**	-.215**	-.150*	-0.078	-.126*
1, **3**	I am satisfied with the status of my university	-.261**	-.285**	0.04	-0.075	-0.096	-0.069
7	I feel that my academic writing skills are adequate for my university studies	-.293**	-.218*	-0.103	-0.086	-0.138	-0.041
	SUPPORT						
1	It is easy to get help from teaching staff when I need it	-.209*	-0.168	-0.072	0.014	-.163*	-0.06
1	Teaching staff usually try to accommodate my needs	-0.063	-.234*	-0.003	-0.018	-.149*	-0.086
8	I am concerned about my emotional health	.237*	0.02	-0.031	.137*	0.053	0.061
	FEEDBACK						
1	I receive helpful feedback on assessment tasks	-.220*	-0.051	-0.069	0.044	-.171*	-.163**
	INVOLVEMENT						
2, 5, 7	I find it difficult to comprehend a lot of the learning material	.329**	0.146	-0.027	.163*	0.035	.148**
2, **13**	I find the university to be a lonely place	.208*	0.199	0.02	0.048	0.045	.115*

*p<.05 **p<.01 (two-tailed)

Many of these results are strikingly different to those reported above for first year students. Commitment issues in second year are university-specific in focus. While being enrolled in the degree of choice and having a clear reason for attending university are significantly associated with intention to leave, as they were for first years, by second year issues related to juggling competing demands on time are no longer salient. Second year students seem to have learnt how to balance competing demands, or those who have not learnt this have probably left. Contrasting with the external focus of first year students' expectations – where the university and its teachers are largely presumed responsible for ensuring learning - second year students display an internal focus, with issues of academic confidence paramount in decisions to leave or stay.

For second year students 'support' issues are not widespread across the sample universities, and only items relating to teachers' support for learning and to wellbeing are significantly associated with likely withdrawal. It may be speculated that there is a relationship between the issue of emotional health and issues of academic confidence in second year, but the data do not enable confirmation of this. Nevertheless second year students' increased focus on personal responsibility for difficulties at university is evident in the relatively stronger correlations obtained for the 'involvement' item relating to comprehension of learning material and in the subtle change from social engagement being seen in terms of personal loneliness rather than membership of the university community. Academically, lack of helpful feedback is, as for first year students, an important factor in second year students' decisions to leave, but overall the focus of second year students is very different to that of first year students.

The results indicating the importance for second year student retention of commitment to the course, as well as the availability of learning-related support and quality feedback, add to and generally support Juillerat's (2000) and Graunke and Woosley's (2005) findings relating, respectively, to sophomore satisfaction and academic success. The results obtained for 'involvement' and 'expectations', however, raise questions about the validity of Tinto's (1993) model as an explanation for second year attrition.

Third year attrition factors

Table 4 presents, for each university, significant correlations for third year students between questionnaire items and the item investigating likelihood of leaving before completing a degree. Although significant correlations were found for 39 of the 70 questionnaire items, only those items which are significantly correlated with intention to leave in at least two universities are listed.

Table 4: Spearman's rho correlations between aspects of university experience and the likelihood of leaving before completing degree studies for third year students

Component	*Questionnaire item and category*	University *1* n=79	University *2* n=34	University *3* n=157	University *4* n=175	University *5* n=149	University *6* n=302
	COMMITMENT						
4	I have a clear reason for attending university	-0.068	-0.331	-0.129	-.156*	-.254**	-0.102
12	The reputation of your university is important when applying for a job	0.105	0.169	-.230**	-0.058	-0.04	-.171**
2, **4**	I was able to enrol in the degree of my choice	0	-0.164	-.200*	-0.071	-.207*	-0.01
2	I attended this university because I was not accepted by the university of my choice	0.041	0.103	0.037	.202**	.168*	0.038
2	I am attending this university as a stepping stone to another university	.279*	0.073	.209**	-0.021	.178*	0.062
	EXPECTATIONS						
7	I have sufficient ability to succeed at university	-0.008	-0.093	-.241**	-.153*	-0.103	-.162**
1, **3**	I am satisfied with the status of my university	-0.16	0.115	-.241**	-0.071	-.177*	-0.018
1, **3**	The library resources are adequate for my learning needs	-0.016	-0.083	-.184*	-0.05	-.198*	0.022
	SUPPORT						
4	The administrative staff are sensitive to the individual student needs	-0.032	0.214	-.181*	-0.12	-.166*	-0.049
1	It is easy to get help from teaching staff when I need it	-0.115	0.103	-.259**	-0.127	-.187*	0.006
	INVOLVEMENT						
2, 5, 7	I find it difficult to comprehend a lot of the learning material	-0.046	0.256	-0.032	.233**	.215**	.117*

*p<.05 **p<.01 (two-tailed)

As for second year students, most of our questionnaire items are not related to third year students' decisions to withdraw from studies. Contrasting with second year students, however, for whom commitment issues relate primarily to the course, commitment issues for third year students relate primarily to the institution. Although not having a clear reason for attending university and not being enrolled in the degree of choice are persistent 'commitment' factors in attrition throughout the three years of degree studies, third year students focus much more strongly than do those in any other year on university status, choice and reputation. It seems that, in their final year of studies, a future orientation impels students to weigh up the longer-term benefits of their university degree and become more proactive in taking responsibility for the ultimate outcomes of their learning.

It is therefore not surprising to find that results for 'expectations', 'support' and 'involvement' demonstrate focus mainly on academic confidence and teachers' support for learning, as they do for second year students. Additionally, administrative staff sensitivity has some impact on attrition decisions in some universities, but the association between likely attrition and lack of helpful feedback has disappeared altogether, perhaps suggesting that students are more familiar with what is required or have assumed more personal responsibility for their own learning and development.

Our findings of an association between likelihood of leaving and second and third year student difficulties related to learning and teacher support reflect Mohr, Eiche and Sedlacek's (1998) findings of academic difficulties and poor teaching as causes for withdrawal of final year undergraduates. Our findings also support the research of Peel, Powell and Treacey (2004) into later year attrition in Australia, in that for later year students commitment is an issue of greater significance than involvement. However, our results indicate that Tinto's (1993) framework has limited explanatory power for second and third year student attrition. Furthermore, although Tinto and Pusser's (2006) framework for institutional action may still be useful, our research indicates that the categories and types of action should be differentiated by year of study.

Factors influencing attrition across diverse universities

Overall, our results indicate that caution should be exercised when extrapolating the results of single-university studies to other institutions or when aggregating results relating to student experience or attrition across universities.

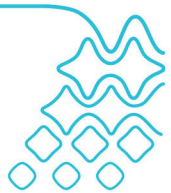
An analysis of the demographics of students responding to our questionnaire does not reveal a clear pattern that can fully explain the similarities and differences in our results. Each of our universities has characteristics that differentiate it from the other universities, and each also has characteristics that make it similar in some respects to some of the other institutions. Although, on the basis of demographic profiling, it is expected that the experiences of Business students will be differentiated from those of students in other faculties in a given university only in cases where there is significant diversity in entrance score requirement, teaching method or facilities, university-specific student characteristics seem to impact which factors are significantly associated with attrition in the first, second and third years of university study. Our results indicate that institutional actions related to attrition and retention need to represent responses appropriate for the specific institution's demographics as well as the year of study.

Discussion and conclusions

First year attrition responses

Amongst first year students, key issues of general concern are those of commitment to course, expectations of teaching and support for learning, and academic confidence, although time management and social engagement are also important issues in some universities. As a matter of priority, universities might offer first year students increased opportunities to complete career-interest inventories, to undertake work-relevant projects, to attend classes where industry practitioners demonstrate how what they learning is applied in a workplace, and to work on case studies. This approach should provide students with a clearer idea of the career choices open to them and the relevance of the knowledge and skills that they are acquiring.

When the factors related to commitment and expectations are viewed together it can be seen that, across the majority of universities, teaching staff approachability and ability to make courses interesting and challenging



contribute significantly to the likelihood of first year student attrition or retention. Teaching and learning strategies that demonstrate why students are learning particular information and how this links to course objectives and graduate attributes may encourage students to see the curriculum as purposeful and interesting. The fact that first year attrition is also associated in at least half the universities with students' failure to understand academics' expectations of them and feelings that they do not have the academic ability and analytic skills to do well in their studies may indicate the need for a review of first year subjects and/or the need to review subject prerequisites. A greater emphasis on how the skills learnt in the final years of secondary school are built on and expanded in first year may assist students to see these skills as developing incrementally. Helping students to identify small skill gaps and providing them with tools that give them the opportunity to practise skills (such as online maths tutors), work at an individual pace, and receive positive feedback may build confidence in their ability and skills.

Strategies that may assist students to gain a better understanding of how much work is required and how to manage their time effectively could include a greater emphasis on 'guided' group work assessment in first year (where academic staff assist students to develop group and research skills), study buddies (where later year students mentor new students) and study areas within libraries that support group work discussion and collaborative work. Assessment techniques that include the application of transparent rating criteria by other group members to determine final grades may also assist students to understand what activities are valued and productive.

To build appropriate expectations, universities should perhaps also invest more energy in visiting schools to help students gain clearer ideas of university life, but with increasing numbers of students coming from other countries and pressure to increase the number of students who attend university this may prove beyond the resources of most institutions. Blogs, podcast lectures, online videos and virtual learning environments that enable students to explore the nature of university life before they attend may help students to gain a greater familiarity with the university environment.

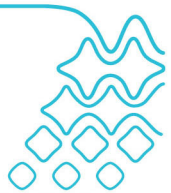
An alternative approach would be to deal with first year student expectations through support strategies, and invest more resources in providing transition support to students at university. Certainly the provision of good course adv ice and demonstration of sensitivity by teaching and administrative staff appears critical. However, although many universities expend significant resources supporting students, relatively few teaching staff - the primary source of contact with first year students - engage in the staff development activities designed to make them more effective teachers. Pressure for increased research output combined with 'cost effective' teaching approaches in first year courses (e.g. large classes, sessional tutors, reduced detailed feedback) is likely to lead to lower levels of staff awareness of student problems, so inevitably institutions must make strategic decisions relating to the prioritising of teaching versus research.

Finally, involvement strategies go hand in hand with the provision of support. In an era when students access social networking tools such as Facebook, MySpace and Twitter and usually have their own well developed social networks, it is perhaps anachronistic to expect most first year students to engage in on campus social activities, yet the need to overcome feelings of not belonging to the university community is critical to retention of first year students in the majority of universities. Classroom activity which engages and supports students through stimulating intellectual discovery must thus become the key tool for building both involvement and support.

Second year attrition responses

By second year many students may have gained a better understanding of the university environment and adjusted their expectations about the level of challenge and support provided. Alternatively it may be that, in some universities at least, class sizes are reduced and there is a greater probability of closer communication with teaching staff.

Strikingly, however, students likely to leave seem to be focussing primarily on their own perceived inadequacies, with intention to leave strongly correlated in five of the six universities with students' negative expectations of their own ability to succeed. Also notable, but less widespread, are continuing issues related



to reason for being at university, writing and comprehension skills, and support from teachers. For second year students, provision of confidence building or skill building activities may be the most important retention strategy, although career identification and support strategies introduced in first year also need to be built upon. The nexus between second year students' intention to leave, commitment to hard work, and perceptions of an excessive workload may indicate the additional need for some universities to employ in second year the sort of expectation building and time management strategies suggested as necessary in first year.

Third year attrition responses

In third year it is still the students who question their own ability and do not have a clear reason for attending who are more likely to leave university. Commitment (and retention) may be increased by continuing programs that assist students to identify diverse career paths and uses for the skills and knowledge that they have developed during their studies. For students who have high levels of ability but are unsure of their career direction, introduction to opportunities for further study in honours and postgraduate programs may provide commitment-building alternatives. Institutional image building is also important for some universities, perhaps achieved by linking students to alumni members, promoting graduate employment outcomes in high prestige organisations, and identifying key competitive strengths of graduates seeking employment. Some universities also need to examine the support they provide through teaching and administrative advice.

Ultimately, as this research demonstrates, there is no 'one size fits all' solution to attrition, and responses must be differentiated by year of study and university.

Limitations and further research

This study reports the results of research into the relationship between intention to leave and the university experience of students in one broad field of study – Business. Yorke's (2000) finding that faculty of study is associated with reasons for withdrawal suggests that relationships between student experiences and intention to leave in one faculty may not be generalisable to other faculties, and thus it may be that differentiation in attrition factors within a given university occurs also by field of study. It is likely that there are differences between the various Business sub-disciplines represented in our sample, and there may be further differences for students enrolled in double (i.e. joint) degrees, although we do not have sufficient numbers to test this latter possibility. Both these themes warrant further exploration, as does the possibility that factors underlying attrition in each year of study are further differentiated by demographic groupings.

Longitudinal quantitative tracking of cohorts is needed to build a better picture of progressive change in students' experience of university and the factors underpinning attrition. Longitudinal tracking of individuals using qualitative methods could provide important information on the critical attrition factors, amongst the many, that lead individuals to withdraw before completing their degrees. The depth in understanding of the first year experience remains to be achieved in respect of later years.

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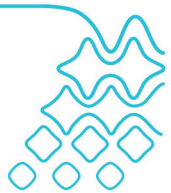

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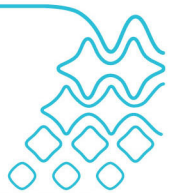

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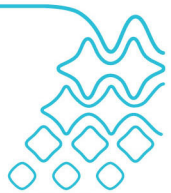

Factors affecting intention to leave in the first, second and third year of university studies: a semester-by-semester investigation

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As most research into attrition and retention has focused on attrition during the first year of studies, we know little about the relationship between students' experience of subsequent years and their decisions to withdraw from university. This paper addresses this gap in research by examining the relationship between students' intention to withdraw from studies and their experience of university in each of the three years of Business degree studies. This empirical research indicates that the factors affecting intention to withdraw are differentiated not only by year but also by semester of study.

Keywords: attrition; student experience; student diversity; teaching practice

Introduction

Pursuing themes highlighted by Tinto (1975, 1993) and Bean (Bean, 1980; Bean & Metzner, 1985; Eaton & Bean, 1995), researchers of attrition and retention have variously examined the impact of student background characteristics (e.g. Christie, Munro, & Fisher, 2004; Long, Ferrier, & Heagney, 2006; Queensland Studies Authority, 2004), institutional factors (e.g. Berger, 2001; Thomas, 2002; Queensland Studies Authority, 2004), and strategies available to mitigate attrition or enrich students' experiences of higher education (e.g. Glaser, Hall, & Halperin, 2006; Kreysa, 2006).

From this research several key factors have consistently emerged as predictors of attrition or retention. Broadly, these may be described as person-environment fit or social or academic integration into the university or college (Sandler, 2000; Christie et al., 2004; Rayle, Robinson Kurpius, & Arredondo, 2006; Allen & Robbins, 2008), personality (Davidson & Beck, 2006; Rayle et al., 2006; Wintre, Bower, Gordner, & Lange, 2006), age (Murtaugh, Burns, & Schuster, 1999; D. Scott, 2005; Long et al., 2006), level of secondary school achievement (Gilbert & Evers, 1989; Murtaugh et al., 1999; Leppel, 2005; Tracey & Robbins, 2006), course choice and clarity of career direction (Sandler, 2000; Christie et al., 2004; Long et al., 2006), grade point average (Murtaugh et al., 1999; French, Immekus, & Oakes, 2005), and part or full-time enrolment status (Long et al., 2006; Yorke, 2000).

Most of these and other studies of students' experience of higher education focus on students' experience of first year (e.g. Krause, Hartley, James, & McInnis, 2005). This overwhelming interest in first year attrition (Pascarella & Terenzini, 2005) is not surprising given that approximately half of all attrition occurs in the first year of studies (DEST Strategic Analysis and Evaluation Group, 2004; Wintre et al., 2006).

Rates of second and third year attrition together, however, approximate those of first year (DEST Strategic Analysis and Evaluation Group, 2004; Wintre et al., 2006), yet there has been relatively little attention paid to factors associated with later year attrition. Studies which explore this area focus mostly on the entry and first year characteristics of students who complete and/or those who withdraw (e.g. Murtaugh et al., 1999; Johnes & McNabb, 2004; Harms, Brent, & David, 2006; Allen, Robbins, Casillas, & Oh, 2008; Hovdhaugen, 2009), although a few studies have investigated the salient factors preceding withdrawal (Johnson, 1994; Yorke, 2000; Christie et al., 2004). There is little research investigating the relationship between students' experience of university in second or third year and

decisions to withdraw in each of those years, although what there is suggests there are differences between the factors involved in first year and in later year withdrawals.

Mohr, Eiche, & Sedlacek (1998) have found significant differences in the factors influencing withdrawal in senior (fourth) year compared with freshman (first) year, with senior students placing primary emphasis on the quality of the academic experience. Johnson's (1996) finding that students of Education and Arts were more likely to withdraw in second year whereas students of Science were more likely to withdraw in their first year further suggests that experience of university and year of study interacts in some way to influence attrition. Similarly Graunke and Woosley (2005) found that different factors correlated with academic success for first and second (sophomore) year students. Juillerat (2000) found that issues causing satisfaction and dissatisfaction differed to some extent for first and second year students. She also found that second year drop outs, compared with second year persisters, in their first year of study had lower expectations and were less satisfied with student life, course content, financial assistance, and administrative and course advice. Peel, Powell, and Treacey (2004), in a small study (n=82) of withdrawals in first and second semester, found that in general the factors influencing withdrawal decisions were differentiated by the semester of withdrawal. They further found differences in the first semester withdrawal reasons given by students in first year and those in later years, but no between-group differences for second-semester withdrawals .

This study adds to the small body of research on later year attrition and retention by relating students' reported experiences in the first, second and third years of undergraduate degree studies to their reported likelihood of withdrawing from university studies altogether (i.e. of 'dropping out'). The study utilises a cross-sectional approach, but it reports data gathered in the one institution in two consecutive years, from students engaged in each of the three years of undergraduate studies. Contrasting with previous studies investigating the personal characteristics of those who complete and those who drop out, this research examines semester-by-semester and year-by-year the personal, academic and institutional factors associated with an increased likelihood of leaving university before completing a degree. The gathering of data in a single institution facilitates comparison of the experience of student cohorts in different years and semesters of study, for the purpose of determining whether factors influencing attrition are differentiated by year and semester of study.

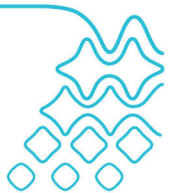
Method

Participants

Participants in this research were undergraduate Faculty of Business students who, in semester one 2008 or semester one 2009, were in the first year (n=302), second year (n=129), or third (and final) year (n=93) of their degree studies. They were undertaking majors in Accounting, Financial Planning, Information Systems, International Business, Human Resource Management, Management, Marketing, Tourism, or completing a generic Bachelor of Business degree. All participants were studying on campus (no off-campus study alternative is available), 60 per cent were female, and 82 per cent were studying full-time, although most also engage in some hours of paid employment.

The sample represented 27.5 per cent of the total undergraduate Faculty of Business student population in the in the years during which the research was conducted. The proportion of international students in the sample (ranging from 9.8 to 13 per cent, depending on the year of study) was representative of the relative proportion of International students within the Faculty, which is 11.8 per cent. The proportion of female and full time student participants in the research slightly exceeded their relative proportions in the Faculty (52 per cent and 72 per cent, respectively).

For reasons discussed in the following section on procedure and analysis, the responses of some students were excluded from data analysis, leaving a total sample of 456, comprising 263 first year students, 113 second year students, and 80 third year students.



Measures

Data on the students' experience of university were gathered using Sections A and B of the Whole of University Experience questionnaire, which was developed over a two year period for use in a nationwide collaborative project funded by the Australian Learning and Teaching Council. The questionnaire items were constructed with reference to attrition-related theory and empirical research (see literature review), related surveys (e.g. Krause et al.,2005), and input from over 400 students as well as academic and support staff at seven universities distinct from each other in character and student population.

Procedure and analysis

Commencing in week three of semester one, Faculty of Business students were invited to complete the Whole of University Experience Questionnaire, available on the university intranet during a six week period. Completion of the questionnaire was voluntary, and anonymous unless the respondent chose to provide contact details at the end of the questionnaire to enable a follow up interview.

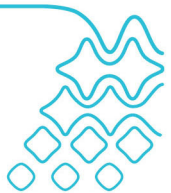
Data from the questionnaire were downloaded into SPSS from Opinio (a web-based survey tool). The total sample was divided into two groups: those who had responded 'no' and those who had responded 'yes' to a Section A question asking 'Do you intend to change to a different university in the future?' As research literature suggests that the characteristics of students who drop out and those who transfer may be quite different (Rummel, Acton, Costello, & Pielow, 1999; Herzog, 2005; Hovdhaugen, 2009), it was decided to exclude from this study those students who had responded 'yes' to the question about intention to transfer.

Responses to Section B of the questionnaire, which dealt with the experience of university, were subsequently correlated with responses to the item in Section A 'Please rate the likelihood of the following: I am likely to leave university before completing a degree', which required respondents to choose a point on a seven-point scale ranging from 'certain to leave' to 'certain to stay'. Intention to leave or intention to stay has been found by several researchers to strongly predict actual departure or persistence (Bean & Metzner, 1985; Eaton & Bean, 1995; Sandler, 2000; Summers, 2003).

Given that responses to Section B and the item in Section A were on ordinal scales, and that data obtained failed the assumption of normality in that responses to the Section A item were expected to be strongly skewed toward the 'certain to stay' end of the scale, Spearman's rho was used in data analysis. Correlations between intention to leave and experience of university were obtained for the sample as a whole, and for the sample grouped into years, and into number of semesters completed.

It should be noted that, with data such as these, a correlation coefficient of 0.3 is considered a medium sized effect (Danaher, Bowser, & Somasundaram, 2008). No one item could be expected to explain a large proportion of the variance, for two reasons: 1) For an individual student, the decision to leave is often the consequence of an accumulation of many factors, each providing a small contribution; and 2) the magnitude of the correlation relates to its capacity to explain all the variance for the group in the sample. Thus, even though for specific individuals one particular factor might explain a large part of their decision, across the sample different factors will be differentially important to different people and so will not explain a large proportion of the variance for all people.

Following computation of correlations a Kruskal-Wallis test was conducted, with likelihood of leaving as the dependent variable and year of study as the independent variable. This test was chosen in preference to ANOVA because, as discussed previously, the data failed the assumption of normality. Using the Kruskal-Wallis test significant differences were found for students grouped by year of study - $\chi^2(DF=2, N=522) = 15.37, p<.05$. Mean scores for first, second, and third year of study groupings were 1.65, 1.46 and 1.37 respectively.



A Kruskal-Wallis test was also conducted with semester of study as the independent variable. Significant differences on the likelihood of leaving university before completing a degree were found for semester of study groupings - $\chi^2(DF=4, N=522) = 17.93$, $p<.05$. Mean scores for semester of study groupings were 1.71 (first year, first semester), 1.55 (first year, second semester), 1.63 (second year, first semester), 1.23 (second year, second semester), and 1.37 (third year, first semester).

To assist in the analysis and reporting of correlations, Section B questionnaire items were grouped with reference to both the categories of issue identified in Tinto and Pusser's (2006) framework for institutional action – commitment, expectations, involvement, support and feedback – and the categories used in G. Scott's (2005) analysis of written comments made by graduates completing the Course Experience Questionnaire – course design, staff, support, outcomes: knowledge/skills. The naming of categories has, however, been changed in some cases to better identify the focus of the questionnaire items in the category or better link a set of categories. The resultant list of issue categories is: commitment (institutional; degree/course; time); teachers (teaching skills and attitude; accessibility and support); course design; feedback; learning (beliefs and expectations; engagement and behaviour; environment and infrastructure); socio-cultural environment and infrastructure; advisors (accessibility and support); personal circumstances.

Results and discussion

Examination of data from the sample reveals some key themes in attrition. In this section these themes will be explored firstly with reference to the whole dataset, secondly with reference to each year of undergraduate studies, and thirdly with reference to each semester of studies.

As Table 1 shows, perhaps not surprisingly in the light of Tinto's (1993) findings that personal and interpersonal interactions are key elements in first year attrition, significant positive or negative correlations with intention to leave were found for all issue categories other than course design and learning environment/infrastructure, although correlations for advisors' accessibility/support were weak. On the basis of these findings, those seeking to decrease attrition in all years of study might focus on building students' academic expectations, on enhancing the quality of teaching and support, and on creating a vibrant place of social and academic engagement.

Further inspection of the data presented in the first five columns of Table 1, however, indicates the need for a finer gradation in response to attrition across the years of undergraduate study.

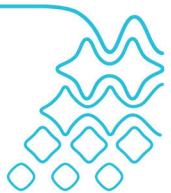


Table 1: Association between aspects of university experience and the likelihood of leaving before completing degree studies, for the sample as a whole and for the sample grouped by year of study

	Year of study				Number of courses completed				
Questionnaire item and category	ALL	1st year	2nd year	3rd year	0-4	5-8	9-12	13-16	>16
	n=456	n=263	n=113	n=80	n=169	n=94	n=65	n=48	n=80
COMMITMENT: INSTITUTIONAL									
I am attending this university as a stepping stone to another university	.138**	.082	.119	.279*	.105	.037	.173	.047	.279*
The reputation of your university is important when applying for a job	-.137**	-	-.183	.105	-.158*	-.238*	-.153	-.280	.105
I attended this university because I was not accepted by the university of my choice	.095*	.123*	.073	.041	.156*	.063	.094	.017	.041
I am satisfied with the status of my university	-.134**	-.133*	-	-.160	-.083	-.223*	-.277*	-.275	-.160
Overall I am satisfied with my experience at university	-.170**	-	-	-.051	-	-.045	-.333	-.171	-.051
COMMITMENT: DEGREE/COURSE									
I have a clear reason for attending university	-.281**	-	-.185	-.068	-	-	-.275*	-.069	-.068
I was able to enrol in the degree of my choice	-.094*	-.136*	-.054	.000	-	.070	-.036	-.089	.000
I know the type of occupation I want	-.177**	-	-	-.010	-	-.072	-.214	-.325*	-.010
COMMITMENT: TIME									
It is difficult to balance my social life and university	.123**	.123*	.028	.181	.057	.226*	.089	.013	.181
I find it hard to manage my time effectively	.136**	.124*	.111	.054	.071	.221*	.046	.246	.054
It is difficult to balance family and university	.041	.022	.089	.021	.031	.005	.142	.010	.021
It is difficult to balance work and university	.080	.088	.150	-.043	.082	.096	.182	.157	-.043
TEACHERS: TEACHING SKILLS & ATTITUDE									
My teachers are enthusiastic about what they teach	-.119*	-.140*	-.151	-.131	-.099	-.226*	.000	-	-.131
My teachers are generally good at explaining things	-.212**	-	-.181	-.078	-	-	-.219	-.126	-.078
My teachers try hard to make the courses interesting	-.101*	-.127*	-.118	-.079	-.098	-.185	-.060	-.238	-.079
Teaching staff make it clear from the start what they expect from the students	-.130**	-	-.007	-.194	-.200*	-.15	.011	-.023	-.194
My teachers are approachable	-.170**	-	-.179	-.192	-	-.067	-.184	-.178	-.192
I have difficulty understanding the accents of some of my teachers	-.018	-.033	.053	-.034	-.063	.036	.062	.021	-.034
I have had a bad experience with a university teacher	-.037	-.059	.114	.146	-.046	-.094	.048	.254	.146

	Year of study				Number of courses completed				
Questionnaire item and category	ALL	1st year	2nd year	3rd year	0-4	5-8	9-12	13-16	>16
TEACHERS: ACCESSIBILITY & SUPPORT									
It is easy to get help from teaching staff when I need it	-.201**	-	-.209*	-.115	-	-.127	-.168	-.284*	-.115
The teaching staff are sensitive to individual student needs	-.144**	-.133*	-.154	-	-.166*	-.081	-.143	-.188	-
Teaching staff usually try to accommodate my needs	-.176**	-	-.063	-.194	-	-	-.076	-.054	-.194
Teaching staff are usually available when I need them	-.224**	-	-.224*	-.220	-	-.239*	-.235	-.197	-0.22
My teachers make a real effort to understand the difficulties students may be having with their studies	-.096*	-.182**	.023	-.203	-.202**	-.142	-.017	.069	-.203
COURSE DESIGN									
My teachers incorporate real world examples into their teaching	-.074	-.132*	-.032	.010	-.121	-.158	.096	-.231	.010
What I am learning at university builds on study I have undertaken in the past	-.050	-.127*	-.041	.207	-.168*	-.041	-.014	-.120	.207
I am satisfied by the work experience opportunities offered by the university	-.011	-.108	.076	-.070	-.172*	.008	.191	-.092	-.070
FEEDBACK									
I receive helpful feedback on assessment tasks	-.203**	-	-.220*	-.132	-	-.134	-.247*	-.159	-.132
I receive prompt feedback on assessment tasks	-.167**	-	-.175	-.132	-	-.082	-.070	-	-.132
LEARNING: BELIEFS & EXPECTATIONS									
I have sufficient ability to succeed at university	-.272**	-	-	-.008	-.198*	-	-	-.267	-.008
My university workload is too heavy	.161**	.181**	.228*	-.017	.120	.282**	.256*	.160	-.017
I feel that my academic writing skills are adequate for my university studies	-.212**	-	-	.005	-.128	-	-.258*	-.349*	.005
I find it difficult to comprehend a lot of the learning material	.143**	.077	.329**	-.046	.111	.022	.345**	.307*	-.046
I have had difficulty adjusting to the style of teaching at the university	.191**	.156*	.141	.177	.192*	.075	.149	.173	.177
I need good analytical skills to do well in my studies	-.083	-.134*	-.101	.107	-	.002	-.051	-.173	.107
To do well at university all I need is a good memory	.052	.044	.145	-.074	.074	-.021	.085	.279	-.074
LEARNING: ENGAGEMENT & BEHAVIOUR									
My courses are interesting	-.139**	-	-.128	-.089	-	-.120	-.161	-.159	-.089

	Year of study				Number of courses completed				
Questionnaire item and category	ALL	1st year	2nd year	3rd year	0-4	5-8	9-12	13-16	>16
I enjoy the intellectual challenge of what I am studying	-.204**	-	-.059	-.032	-	-	-.033	-.097	-.032
I enjoy the opportunity to interact with students from different cultures at university	-.037	-.050	-.114	.069	-.182*	.178	-.077	-.184	.069
In groupwork I prefer to work with people from different cultures	.053	.023	.134	-.071	-.040	.133	.210	-.008	-.071
I participate in class discussions	-.098*	-.087	-.156	.038	-.133	-.001	-.152	-.140	.038
I come to class prepared	-.181**	-	-.099	.060	-	-	-.133	-.040	.060
I frequently skip class	.104*	.077	.179	.207	.093	.047	.258*	.080	.207
I don't attend classes if notes and materials are on the website	.112*	.117	.164	.099	.136	.075	.239	.056	.099
I regularly seek advice from my teachers	-.160**	-	-.079	-.127	-	-.185	-.110	-.054	-.127
I work hard at university	-.160**	-	-.178	-.142	-.169*	-.154	-.115	-.238	-.142
LEARNING: ENVIRONMENT & INFRASTRUCTURE									
The teaching rooms provide a high quality learning environment	-.082	-.131*	-.088	.003	-	.029	-.237	.151	.003
The library resources are adequate for my learning needs	-.012	-.076	.001	-.016	-.018	-.187	-.078	.135	-.016
The university's IT resources are adequate for my learning needs	-.013	-.124*	-.066	.300**	-.071	-.224*	-.094	-.028	.300**
Class sizes at my university are too large	.078	.147*	-.010	.016	.153*	.146	-.036	.028	.016
The timetabling of my classes is convenient	-.041	-.121	.159	-.004	-.099	-.180	.211	.064	-.004
SOCIO-CULTURAL ENVIRONMENT & INFRASTRUCTURE									
The university facilities are adequate for my social needs	-.102*	-	-.115	-.045	-.091	-	-.122	-.134	-.045
The university facilities are adequate for my religious/cultural needs	-.106*	-	.022	-.047	-.131	-	-.042	.139	-.047
Other students are sensitive to the needs of students from different cultures	-.118*	-	-.053	-.076	-.129	-	.053	-.194	-.076
I like the physical environment of the university campus	-.132**	-	-.121	-.061	-	-.106	-.105	-.140	-.061
I feel I belong to the university community	-.174**	-	-.196*	-.03	-	-.125	-.144	-.294*	-.030
I find the university to be a lonely place	.128**	.176**	.208*	-.073	.231**	.078	.259*	.143	-.073
I find it easy to travel to university	-.052	-.058	-.152	-.018	-.065	-.053	-.132	-.194	-.018
ADVISORS: ACCESSIBILITY & SUPPORT									
I have received good advice from the university about enrolment options in my degree	-.101*	-	-.033	-.026	-	-.110	-.047	-.016	-.026
I received good advice from a careers adviser at my university about choosing my degree	-.086	-.134*	-.095	-.002	-.166*	-.070	-.080	-.17	-.002

	Year of study				Number of courses completed				
Questionnaire item and category	ALL	1st year	2nd year	3rd year	0-4	5-8	9-12	13-16	>16
I received good advice from my school about choosing my degree	.026	-.026	.120	.003	-.084	.096	.223	-.074	.003
It is easy to get help when I need it from administrative staff	-.078	-.137*	-.085	.077	-	.005	.022	-.261	.077
Administrative staff are usually available when I need them	-.050	-.114	-.003	.046	-.147	-.042	.032	-.089	.046
The administrative staff are sensitive to individual student needs	-.099*	-	-.079	.066	-.195*	-.157	-.036	-.116	.066
Having a mentor at university would be useful	.015	-.020	-.066	.017	-.015	-.057	-.131	-.014	.017
PERSONAL CIRCUMSTANCES									
I am concerned about my emotional health	.140**	.137*	.237*	.050	.143	.141	.347**	.032	.050
I am concerned about my physical health	.103*	.032	.266**	.073	.037	.030	.383**	.052	.073
I am often homesick	.114*	.093	.044	.270*	.050	.151	.120	-.051	.270*
I am worried about the debt I am accumulating while I am attending university	.097*	.027	.307**	.087	.054	-.022	.308*	.319*	.087
I have financial problems	.056	-.018	.183	.043	-.012	-.026	.237	.104	.043

*p<.05 **p<.01

Factors in first year attrition

As might be expected, given previous research into first year attrition and the quantum of attrition in first year, a much wider range of factors impact upon first (than second or third) year students to increase the likelihood of attrition. At a personal level, first year students involved in this study are most likely to leave if lack commitment to the institution, lack commitment to a specific career direction or degree, were not well advised about enrolment options, or if they feel socially disengaged.

Academically, first year students are most likely to leave for reasons relating to staff skills and support and to learning expectations and behaviour: if they feel they lack the academic preparation necessary for university study, if their teachers or administrative staff appear unsupportive or inaccessible, and if their teachers fail to create learning experiences characterised by clarity of content and expectations, engagement, and helpful and timely feedback. These findings are congruent with previous research, such as detailed in the literature review.

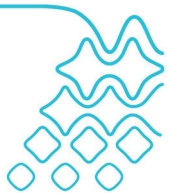
It may be that the lack of effort and preparation associated here with the likelihood of withdrawal from studies in first year represent responses to learning environments that are perceived to be unsupportive and unengaging. Alternatively - as may also be the case when students perceive that good analytical skills are not needed - such behaviours may reflect a failure on the part of students to understand expectations, or on the part of teachers to clarify expectations or use strategies that elicit the behaviours they desire.

Factors in second year attrition

By the second year of studies in this university and faculty, the likelihood of withdrawal prior to degree completion is associated with a much narrower range of factors. This finding resonates with research which found clear differences between the responses of first and second year students - that of Juillerat (2000) into satisfaction and of Graunke and Woosley (2005) into academic success. In this current study, factors associated with withdrawal in second year relate primarily to personal aspects - health, finance, social integration, clarity of career direction and self-efficacy in relation to academic capacity - although institutional commitment, accessibility of teaching staff, and helpfulness of feedback also have some influence on decisions to withdraw from studies. Interventions to address second year withdrawal would thus focus primarily on activities that build a personal support base for students. Unlike the first year students at risk of withdrawal, for whom appropriate interventions would encompass not just personal support activities but also staff development to improve teaching quality, these second year students seem largely to have come to terms with what is offered and expected in the areas of teaching and learning.

Factors in third year attrition

Third year students also appear to have largely come to terms with what is offered and expected in teaching and learning. For third year students early departure is strongly associated only with lack of sensitivity to their individual needs and to adequate IT resources, and there is a weaker relationship with homesickness and progression to another university. The positive correlation for third year students between intention to leave and the questionnaire item 'I am attending this university as a stepping stone to another university' gives a clue as to the provenance of the result related to homesickness. Nearly 13 per cent of the students in the third year sample are international short-term study abroad students who, upon completion of one or two semesters of study, return to a university in their home country. Although the percentage of international students in the first and second year samples is similar to that in the third year sample (at 9.8 and 13 percent, respectively), some of these first and second year international students are enrolled to complete the full three years of their degree studies at the university. It is doubtful that much can be done to address the issues of homesickness or return to a home university, and thus for this sample of third year students interventions designed to decrease withdrawal prior to degree completion would almost entirely focus on developing in teaching staff strategies for identifying and responding to individual student needs and ensuring adequate IT-related learning infrastructure.



Factors in attrition – semester by semester

Examination of correlations with reference to year of study provides a clear indication that, to be effective, retention programs need to target not just first year students. Rather, they also need to target second year students, and possibly even third year students, and be specifically directed to the areas experienced as problematic by students in later years. Examination of data related to semester of study indicates, however, that an even finer gradation in responses to attrition may be necessary. Congruent with the findings of Peel et al. (2004), this study uncovers differences in factors associated with intention to leave in first semester, when compared with second semester.

The last five columns of Table 1 present data on the relationship between the experience of university and the likelihood of leaving university before completing a degree, grouped by the number of courses completed, with four courses representing the normal full-time study load per semester and eight courses representing the normal full-time study load per year.

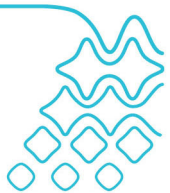
Factors in attrition – first and second semester of first year

Although as indicated previously this paper presents cross-sectional rather than longitudinal data, the extent to which results are differentiated by semester suggests that, in general, student development and change over time at university is paralleled by development and change in factors influencing attrition. Amongst students in their first year of study, first semester (i.e. zero to four courses completed) presents challenges that appear to have been dealt with by second semester, either through acceptance of the prevailing situation or actual departure. In first semester of first year, those contemplating departure focus on issues of personal commitment to the university and to studies, career direction, engagement with learning, teacher and administrative staff support, and the social environment offered by the university. By second semester those contemplating departure are still focussing on commitment to the institution and degree but a weak relationship between attrition decisions and time management difficulties, especially relating to social life, is also evident. In the context of responses indicating the inadequacy of social and cultural facilities, it may be that second semester students contemplating withdrawal from this university are seeking social activity primarily off campus and thus committing a substantial part of their time to interaction that does nothing to build a sense of engagement with the university or with fellow students.

By second semester the number of facets of teacher skill/support influencing attrition decisions has diminished appreciably, suggesting either that students have come to terms with 'the way things are' at this university, or that many of those who were unable to adjust left during first semester. It is notable, however, that those likely to depart are nevertheless strongly influenced by perceptions of teaching quality and support. On a personal level they have continued to disengage intellectually and seem to express this through lack of preparation, although this lack of preparation might also be explained by their social activity. Of particular concern is that by second semester students likely to depart are not only more strongly influenced by their perceived inability to succeed at university, but to this concern they have also added feelings of inadequacy related to writing skills and a perception of work overload. Clearly, to retain students in both first and second semester of first year studies at this university it is necessary to foster better social integration, but in second semester interventions designed to address potential attrition would most productively focus on developing students' academic skills and confidence, whereas in first semester productive interventions would focus on building teaching and advising capacity, student expectations and a sense of purpose for study.

Factors in attrition – first and second semester of second year

As with first year students, second year students' intention to leave is also triggered by different factors in each semester, although in each semester the financial opportunity cost of being at university is now weighing on students' minds. By first semester of second year perceptions of insufficient academic ability have become by far the most significant issue related to intention to leave, although health issues and loneliness - both of which may be related to feelings of incapacity to cope academically - also appear as major determinants of departure. Lack of purpose in studies and lack of helpful feedback on assessment tasks also exert some influence over these students, and those most likely to leave are likely now to be manifesting their disengagement by skipping classes.



By second semester of second year, if the result is not an artefact of the particular two second-year cohorts involved in this study, it appears that those with health issues have left, or the health issues have been resolved. By second semester of second year, however, issues related to lack of purpose and to feedback remain amongst those likely to leave, as do perceptions of inadequate social integration and academic inadequacy, and there is a renewed focus on teacher enthusiasm and support. Interventions to address attrition in both first and second semester of second year would probably best focus on continuing the building of social integration, academic confidence and perceived capacity, although there is also a need to continue staff development related to teaching activities. Even if the finding of health issues as an influence on attrition is not generalisable to other second year cohorts, this finding suggests the need for universities not just to have in place student health services, but also to make sure that students are aware of their existence.

Factors in attrition – first semester of third year

By the first semester of third year the main trigger for departure is teacher-related, and the nature of the concern – sensitivity to individual student needs – suggests that teaching staff may need to consider what they can do to assist students to manage competing demands on their time. Although the data do not provide insights into the nature of individual needs, perhaps after two years of acculturation into the academic routine of assignment submission and class attendance these students are asking to be allowed some flexibility. Third year departure from this faculty is certainly in part attributable to the 'poaching' of students by local businesses in professional areas where demand exceeds supply. For many of these students - faced with competing home, work and study demands - the opportunity for, or maintenance of existing, employment is significantly more attractive than completion of university studies when the consequence of not finishing a degree may be only slightly limited progression or remuneration prospects.

Limitations and further research

This study reports the university experience of students in one faculty and in one university, and its conclusions must be seen in this light.

Prior research suggests that faculty of study affects year of greatest attrition (Johnson, 1996) and reasons for withdrawal (Yorke, 2000) and, if this is the case, it may be that relationships between student experiences and intention to leave in one faculty are not generalisable to other faculties. Similarly, further research is needed to determine whether the relationship between Business students' intention to leave and experience of university is generalisable across universities or whether the findings of this study of one university are limited in their generalisability. Future research using qualitative data may also shed greater light on the way in which the experiences reported in this paper interact to increase or decrease the likelihood of attrition across the duration of a student's time at university.

Conclusions

Congruent with the findings of the only empirical research that could be located comparing factors underlying attrition in first and later years (Mohr et al., 1998) and in different semesters (Peel et al., 2004), this research demonstrates that salient influences on students thinking of 'dropping out' differ in each year of undergraduate degree study, and in the semesters within each year. Table 2 summarises these diverse influences.

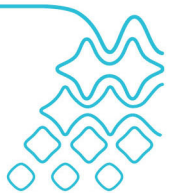


Table 2: Summary of key factors underlying attrition decisions, by year and semester of study

Factor*	Year of study			Semester of study				
	1st year	2nd year	3rd year	1st year 1st semester	1st year 2nd semester	2nd year 1st semester	2nd year 2nd semester	3rd year 1st semester
Commitment to institution	✓	✓		✓				
Commitment to degree/course	✓	✓		✓	✓		✓	
Teachers' skills/attitude	✓			✓	✓		✓	
Teachers' accessibility/support	✓		✓	✓	✓			✓
Feedback on assessment	✓			✓			✓	
Academic self-efficacy/expectations	✓	✓		✓	✓	✓	✓	
Academic engagement/behaviour	✓			✓	✓			
Learning environment/ infrastructure			✓	✓	✓			✓
Socio-cultural environment/infrastructure	✓			✓	✓	✓		
Course/career advice	✓			✓				
Personal circumstances		✓				✓	✓	

*Deemed key factor if result significant at p<.01level, or if p<.05 and correlation coefficient >.3.

These findings indicate that in this institution an effective retention program would extend beyond a focus on the first year experience, and be purpose-designed to address second and third year student concerns about academic self-efficacy, health, and teaching quality. More generally these findings, together with those of other research, suggest that effective university attrition intervention programs will cater not just for first year, but also later year, students and will address different issues for students in different years and semesters of study.

Acknowledgements

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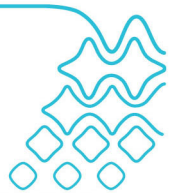

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Appendix 8.5 Article to be published in the
Australian Journal of Education 54(2), 2010

The relationship between choice of major and career, persistence, and experience of university

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Abstract

This study builds on earlier findings that clear choice of major and clarity of career direction is associated with persistence at university. Data obtained from a survey investigating Business students' experience of university was correlated with intention to leave and examined with reference to the experience of two distinct major/career groupings – those students who had committed themselves to a career-related major, either Accounting or Marketing, and those who were enrolled in the generic Bachelor of Business, which is identified with no specific business careers. Findings suggest that generalisations - even within a single Faculty - may be inappropriate, for our study identifies differences in the risk factors associated with each of these three of the many majors within a Faculty of Business. More research is needed to identify further differences in the factors that influence attrition from different majors, so that interventions can be focussed and effective.

Keywords: College major, career choice, persistence**,** student retention, attrition.

The attrition rate for Bachelor students is one of the performance indicators currently used to allocate funding from Australian Learning and Teaching Performance Fund, and it is a performance indicator likely to be used into the future as governments seek to ensure a nexus between higher education inputs and outputs. Universities, therefore, have a strategic imperative to understand and manage the determinants of attrition.

Studies of attrition and retention over the last thirty years have progressively confirmed the impact of what the student brings to college or university studies, especially in terms of psychological predisposition or motivations (e.g. Bean and Metzner 1985; Eaton and Bean 1995; Christie et al. 2004; DeBerard et al. 2004; Rayle et al. 2006). Often guided by models of attrition and retention such as those developed by Tinto (Tinto 1975; Tinto 1993) or Bean (Bean 1980), research into individual student characteristics has highlighted the role of what Tinto calls 'goal commitment' (Tinto 1975, p. 93) and what Bean refers to as 'practical value' and 'major certainty' (Bean 1980, p. 159), that is, the identification of and commitment to a clear career goal and/or major[1]. It is this specific body of attrition-related research on which this paper builds.

Interactions between major, attrition, and persistence

In studies investigating persistence, Sandler (2000) found that persistence at university was promoted by students' confidence in their ability to make appropriate career-related decisions [of which choice of major is one]. Similarly, Kreysa (2006) found that declaring a major increased the likelihood of persistence by 22 per cent, leading him to conclude that students who had clear career goals - and were thus able to choose a major

[1] The term 'major' (or 'program', 'course', 'field of study') is used in this paper to refer to a body of study that exhibits a thematic unity or is tied to an identified set of career opportunities, e.g. majors in accounting, in English literature, in biology, in mechanical engineering etc. These terms contrast with 'discipline' and 'degree', which refer to the wider academic framework within which choices of major are made, e.g. (Bachelor of) Business, Arts, Science, Engineering etc.

from the outset - were more likely to be retained. Allen and Robbins (2008) found that students who choose a major that matches their interests, as measured in terms of academic discipline, college commitment and social connectedness, are more likely to persist, independent of level of academic performance. Using Holland's interest inventory which investigates occupational preferences categorized as realistic, investigative, artistic, social, enterprising or conventional, Tracey and Robbins (2006) also found that persistence was related to congruence between interest and major, but only for students with lower overall levels of interest.

Studies addressing choice of major and clarity of career direction from the perspective of causal factors in attrition rather than persistence also point to the impact of career goals and interest-major congruence. Yorke (2000), who surveyed students who had withdrawn (i.e. dropped out) from six universities during two one-year periods, found that choice of the wrong field of study and lack of commitment to the chosen program had the greatest impact of all factors associated with departure from higher education. Similarly, Christie et al. (2004) found that poor choice of course was the reason for withdrawal most commonly given by those who had dropped out of university altogether. Long et al. (2006) found that a change of career direction was a key factor in students' decision to discontinue, reported by 21.6 per cent of students who did not return to university after their first year although, like Christie et al., they also acknowledge that withdrawal decisions usually involve a combination of factors.

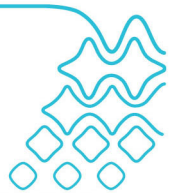
Intriguingly, independent of student interest in the field of study and clarity of career direction, it appears that the choice of Faculty, and also major, may influence persistence and attrition in other ways. Johnson (1996) found that not only did the withdrawal peak occur in different years for Education, Arts and Science students, but that withdrawn students from each of the Faculties reported different levels of loneliness and social integration. Similarly, Murtaugh et al. (1999) found that an Arts student was 15 per cent more likely to withdraw than a Science student, even when results were adjusted to equalise common attrition risk factors. Danaher et al. (2008) found that different Faculties and majors in those Faculties within the one university were associated with different levels of attrition. A conclusion that can be drawn from such previous research is that for some students initial interest and clarity of career direction may be outweighed by factors such as quality of teaching, culture of the discipline (Becher and Trowler 2001), and perhaps even evolving awareness of the focus of the major/career. Alternatively, it may be that in some discipline areas and Faculties, especially those such as Arts which provide pathways to a wide range of careers, even a considered and early choice of major is insufficient to promote persistence when other difficulties arise.

If clarity of career direction, major-interest congruence and the actual major chosen are factors underpinning persistence or attrition it could be expected that, in professional and vocationally oriented Faculties, students engaged in study that is clearly tied to a specific career path will exhibit different patterns of student experience to students engaged in study less clearly tied to a specific career path. Specifically it is expected that students taking majors that lead to specific careers (e.g. Accounting or Marketing) will be clearer about their future career options, clearer about their reason for attending university, find their courses more interesting, and therefore demonstrate greater engagement in the learning process. These differences will then lead to a reduced likelihood of students leaving before completing their degree, unless they do not maintain that clear career direction and reason for attending university or unless they find that they are unlikely to achieve their career aspirations due to poor academic performance. On the other hand, students enrolled in a generic business degree (e.g. Bachelor of Business) will be more likely to leave before completing their degree if they do not find their courses interesting, do not become engaged in the learning process, or have a generally unsatisfactory experience with university.

Testing the effects of chosen major within a Business Faculty

Little has been done to assess whether different choices of major within a specific Faculty are in fact associated with different experiences of university and different risk factors for attrition.

In the absence of research in this area, it therefore remains unclear whether retention programs need to be directed to Faculties as a whole - as suggested by Johnson (1996) in response to her findings of Faculty



differences in attrition patterns – or constructed with reference to attrition risk factors specific to distinct majors. Any differences will have important implications for career guidance, university recruitment, program structure – particularly the timing of courses within the major - and monitoring students at risk.

The research described in this paper explores the relationship between intention to leave and the experiences of Faculty of Business students enrolled in three distinct majors: Bachelor of Accounting (which prepares students for accreditation with Accounting's professional bodies), Bachelor of Business (Marketing) (which is associated with a specific career but does not require professional body accreditation), and the Bachelor of Business (which is a generic major, identified with no specific business career and comprising subjects the student chooses from the full range of available business courses).

We seek to discover whether different risk factors for attrition exist in different majors within the same Faculty by testing the following hypotheses:

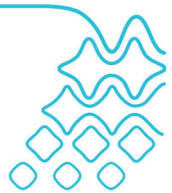
Compared to Bachelor of Business (BBus) students, students who have chosen a career-specific major, Accounting or Marketing (Acc or Mkt), will:

H1a exhibit greater clarity of career direction
H1b have a clearer reason for attending university.
H1c find their courses more interesting.
H1d exhibit greater engagement with the learning environment.

Hypothesis 2 predicts that these differences will result in Acc/Mkt students being less likely to leave before completing their degree. These factors are expected to differ, however, in their impact on intention to leave. For students who have chosen a major (Acc/Mkt), a clear career direction and reason for attending university are expected to be important motivators that will reduce their likelihood of leaving before completion. The corollary is that students who have chosen a career, which initially provided a clear reason for attending university, will be more likely to leave if that career direction changes. In both cases, for Acc and Mkt students, but not BBus students, we expect likelihood of leaving to be correlated with clarity of career direction (H2a) and a clear reason for attending university (H2b). Similarly, on the basis of fundamental theories of motivation (for example, expectancy theory or goal theory), students who are unlikely to achieve their specific career aspirations (Acc/Mkt) due to poor academic performance are predicted to be more likely to leave. Hence we predict a correlation between academic performance and intention to leave for Acc/Mkt students that is greater than the correlation for BBus students (H2c).

Since Acc and Mkt students have career-related motivations for attending university, lack of engagement and interest in courses are not expected to be as important in influencing attrition. Conversely, without a clear career goal and reason for attending university, interest in courses (H3a) and engagement (H3b) are expected to be important factors influencing the likelihood of leaving for BBus students. Similarly, we predict that general satisfaction with the university experience will be more important in determining likelihood of leaving for BBus students than for Acc/Mkt students (H3c).

In the following sections, after outlining the method used in this research, we present and discuss results related to the hypotheses. Next we discuss the intervention strategies indicated by the results as likely to be effective in preventing attrition from the majors being examined, and finally we present limitations and suggestions for future research.



Method

The context for the research is a small, regional Australian university which has a student population of approximately 50 percent 'traditional' students (i.e. school leavers who have progressed straight to university) and 50 percent 'non-traditional' students (e.g., mature age, often part-time). Approximately 50 percent of students are also the first in their family to attend university and the majority of the student population commutes to the university from the local area, which is generally characterised as a region of lower socio-economic status although it contains pockets of high wealth. The university has an undergraduate international student population of approximately 12 per cent, and these students come predominantly from Europe and the USA. At undergraduate level teaching occurs on campus, although slides of lectures are also made available to students on the university's intranet.

Participants

Participants in this research were students in the above university who, in semester one 2008 or semester one 2009, were undertaking majors in Accounting (n=90), Marketing (n= 50), or completing a generic Bachelor of Business degree (n=92). The sample represented approximately 21 per cent of the Accounting student population in the Faculty of Business in the two years during which the research was conducted, approximately 28 per cent of the Marketing student population and 31 per cent of the Bachelor of Business student population. Student participants in the research were, variously, in the first, second or third (and final) year of their degree studies.Measures
Data on the students' experience of university were gathered using Sections A and B of the Whole of University Experience questionnaire. This questionnaire was developed for use in a nationwide collaborative project funded by the Australian Learning and Teaching Council, and its final form reflects input from seven universities distinct in character and student population. Section A gathers demographic data; Section B uses a nine-point Likert scale to capture information about students' experience of university.

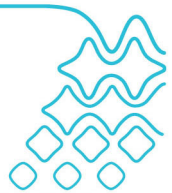
Procedure and analysis

Commencing in week three of semester one, students in the Faculty of Business were invited to access and complete the Whole of University Experience Questionnaire, which was available on the university intranet during a six week period. Completion of the questionnaire was entirely voluntary, and also anonymous unless the respondent chose to provide contact details at the end of the questionnaire to enable a follow up interview.

Data from the questionnaire were downloaded into SPSS from Opinio (the web-based survey tool used to gather the data). Students who indicated that they intended to change to a different university in the future were excluded from the analysis as research literature suggests that the characteristics of students who drop out and those who transfer may be quite different (Rummel et al. 1999; Herzog 2005). Excluding these students resulted in 74 BBus Students, 85 Acc students and 50 Mkt students.

Responses to Section B of the questionnaire, which dealt with the experience of university, were subsequently correlated with responses to the item in Section A 'Please rate the likelihood of the following: I am likely to leave university before completing a degree', which required respondents to choose a point on a seven-point scale ranging from 'certain to leave' to 'certain to stay'. Intention to leave or intention to stay has been found by several researchers to strongly predict actual departure or persistence (Bean and Metzner 1985; Eaton and Bean 1995; Sandler 2000; Summers 2003).

The focus of the analysis was on the differences between students studying a generic Bachelor of Business degree and those studying a career-specific major, either Accounting or Marketing. Descriptive analysis of demographic data for the three majors was undertaken. An initial review of the data indicated that the responses to the dependent and independent variables were heavily skewed, particularly the response to the main dependent variable – intention to leave (with most intending to stay). The means and standard deviations for 'Likelihood of leaving university before completing a degree' were 1.69 (1.349), 1.39 (0.803), and 1.36



(1.064) for BBus, Acc, and Mkt students, respectively. Therefore, non-parametric statistics (planned Mann-Whitney U (*U*) comparisons and Spearman's rho (*p*)) were used to test the hypotheses. Correlations between likelihood of leaving university before completing a degree and a range of factors associated with experience of university were determined for each major and then significant differences between these correlation coefficients were identified[2].

Results and discussion

Descriptive Statistics – Demographics

For demographic variables, comparisons were made on the basis of the major in which participants in the research were enrolled. Statistically significant differences are identified in Table 1.

Table 1: Demographic data for students in each major

	Business		Accounting		Marketing	
	No.	%	No.	%	No.	%
Attrition						
Past 5 years to 2009		30		24		26
Enrolment						
Full-time	55	74.3	59	69.4*	44	88.0*
Year of Study						
Year 1	40	54.1	43	50.6	21	42.0
Year 2	22	29.7	31	36.5	16	32.0
Year 3	12	16.2	11	12.9	13	26.0
Gap between school & uni						
No gap	31	41.9	38	44.7	25	50.0***
Less than 1 year	0	0	1	1.2	3	6.0***
1-2 years	14	18.93	10	11.8	11	22.0***
More than 2 years	29	9.2	35	41.2	11	22.0***
Prior academic results						
85+ (HD)	8	10.8	7	8.2	6	12.0
75-84 (DN)	25	33.8	23	27.1	17	34.0
65-74 (CR)	36	48.6	38	44.7	24	48.0
50-64 (P)	4	5.4	16	18.8	3	6.0

* p <0.10; ** p <0.05; *** p <0.01, using chi square (χ^2) tests.

As can be seen in Table 1, significant enrolment differences were found for students in Marketing and Accounting, with Accounting majors more likely to be enrolled part time and Marketing majors more likely to be enrolled full time. This result is paralleled by the significant differences in the 'gap year' number, which indicates that in this sample Marketing students are more likely to be 'traditional' students who enter full-time study direct from school or with little break between school and university.

Demographic data were subjected to further analysis using mean and median calculations to ascertain if significant differences existed in the time commitments of students in the three majors. As might be expected given the results in Table 1, and as can be seen in the course load results in Table 2, Accounting students take significantly fewer courses than Marketing students (χ^2 = 5.280, p= 0.07136), and spend significantly less time on campus than do Marketing students (*U*=1651.5, p=0.029[3]). Consistent with this, Accounting students also spend significantly more time per week in paid employment (23.38 hours) than do either Bachelor of Business students (*U*=2356.5 p= 0.006) or Marketing students (*U*=1460, p= 0.002).

[2] Fischer's Z transformation (Z'=1/2(ln(1+*p*)-ln(1- *p*) was calculated and the difference between the two transformed correlations was then divided by the standard error. Scores greater than 1.645 are significant at the 10% level, scores greater than 1.96 are significant at the 5% level and scores greater than 2.576 are significant at the 1% level.

[3] All comparisons are two-tailed tests unless hypothesized, in which case the one-tailed probability is reported.

Table 2: Time commitment by students in each major

Demographic variable/major	Mean	Std Dev	Median
Course load this semester (number of courses)			
Business	3.25	0.99	4
Accounting	3.05	0.97	3
Marketing	3.48	0.85	4
Time in paid employment (hours per week)			
Business	14.37	14.44	15
Accounting	23.38	13.55	23
Marketing	13.45	10.39	13
Time spent on campus (days per week)			
Business	2.59	2.71	3
Accounting	2.46	2.51	2.5
Marketing	3.03	2.05	3

In summary, in this sample Accounting students are more likely than either Business or Marketing students to be enrolled part time, and they spend significantly more time in paid employment than either of the other groups. Marketing students are more likely to be full-time students, straight from high school. They spend fewer hours in paid employment than Accounting students, take more courses and spend more time on campus than Accounting students. Anecdotal evidence indicates that Accounting students are more likely to be employed within their chosen profession prior to completing their degree (hence the greater part time study and paid employment). In contrast to Marketing students, who come straight from high school and so are unlikely to have had much exposure to their intended career, Accounting students are therefore even more likely to have career clarity and a clear reason for attending university.

Hypothesis testing

Hypothesis 1

Table 3: Differences between students with and without a career-specific major

	H1a I have a clear reason for attending university	*H1b* I know the type of occupation I want	*H1c* My courses are interesting	*H1d* I work hard at university	*H1d* I participate in class discussions	*H1d* I come to class prepared
BBus (n)	73.00	74.00	73.00	73.00	74.00	73.00
Mean	7.41	6.22	6.93	6.88	6.65	7.23
Std Dev	2.03	2.59	1.86	1.67	2.08	1.46
Median	8.00	7.00	7.00	7.00	7.00	7.00
Acc/Mkt (n)	130.00	130.00	131.00	131.00	129.00	129.00
Mean	7.97	6.75	6.63	6.63	6.98	7.13
Std Dev	1.51	2.13	1.71	1.71	1.66	1.64
Median	8.00	7.00**	7.00*	7.00	7.00	8.00
Acc (n)	82.00	81.00	82.00	82.00	80.00	82.00
Mean	7.96	7.17	6.52	6.44	6.78	7.06
Std Dev	1.57	1.94	1.76	1.90	1.84	1.67
Median	9.00**†††	8.00	7.00†	7.00	7.00	7.00
Mkt (n)	48.00	49.00	49.00	49.00	49.00	47.00
Mean	7.98	6.06	6.80	6.94	7.33	7.26
Std Dev	1.42	2.27	1.63	1.30	1.26	1.61
Median	8.00†††	7.00	7.00	7.00	7.00	8.00

Differences based on non-parametric, Mann-Whitney *U* planned comparisons
Significant differences to BBus * p <0.10; ** p <0.05; *** p <0.01 one-tailed where planned
Significant differences between Acc and Mkt † p <0.10, †† p <0.05, ††† p <0.01 two tailed

The first hypotheses (H1a) predicted that students who have chosen a career-specific major, (Acc or Mkt), would exhibit more clarity of career direction than BBus students. In order to test this hypothesis we compared the median response to the Section B questionnaire item 'I know the type of occupation I want'. There was no significant difference between BBus students and those who had chosen a career-specific major (U=4349.5, p=0.125 one-tailed). Follow-up tests revealed, however, that there was a significant difference between Acc students and BBus students (U=2391.5, p=0.027 two tailed). Furthermore, Acc students were also significantly different to Mkt students (U=1372, p=0.003 two tailed). Therefore, H1a, that students who choose a career-specific major will exhibit greater clarity of career direction, is only supported for Accounting students.

Choosing a career-specific major was expected to result in a clearer reason for attending university (H1b). To test this hypothesis we compared students based on their response to 'I have a clear reason for attending university'. The hypothesis is supported (U=4033, p=0.030 one-tailed).

H1c predicted that students who had chosen a career-specific major (Acc or Mkt) would find their courses more interesting than would BBus students because of the relationship of the course and course materials to the features of the career that triggered their initial interest. This hypothesis was not supported. Indeed, BBus students reported greater interest in their courses (U= 4117, p=0.094 two-tailed). Further analysis revealed, however, that this difference in level of interest occurred only between BBus and Acc students (U= 2479, p=0.061 two tailed).

H1d predicted that Acc/Mkt students would demonstrate greater engagement with learning and the learning environment because of higher interest-major congruence. To test this hypothesis we compared responses to the following three items: 'I work hard at university', 'I participate in class discussion', and 'I come to class prepared'. There were no significant differences between BBus and Acc/Mkt students. Furthermore, follow-up tests found no significant difference between BBus and either Acc or Mkt students separately. This is consistent with the failure to find support for H1c.

The results of these hypotheses, and the demographic information, highlight important differences between students who choose a career-specific major and those who do not. Interestingly, they also reveal differences between the career-specific majors (Acc and Mkt). The following hypotheses test the impact of these differences on likelihood of leaving.

Hypothesis 2

Table 4: Spearman correlation coefficients with likelihood of leaving before completing a degree

Hypothesis	Questionnaire item	BBus	Acc/Mkt	Acc	Mkt
H2a	I know the type of occupation I want	-0.011	-0.166**	-0.174*	-0.243**
H2b	I have a clear reason for attending university	-0.189*	-0.064	-0.062	-0.073
H2c	Prior academic results	-0.099	0.234***††	0.242***††	0.187*
	I have sufficient ability to succeed at university	-0.406***	-0.211***	-0.212**	-0.178
	I feel that my academic writing skills are adequate for my university studies	-0.306***	-0.216***	-0.210**	-0.156
H3a	My courses are interesting	0.019	0.035	-0.005	0.149
H3b	Engagement with the learning environment				
	I work hard at university	-.283***	-0.049	-0.094	0.137††
	I participate in class discussions	-0.244**	0.064††	0.081††	0.066†
	I come to class prepared	-0.123	-0.183**	-0.271***	0.019
H3c	Overall I am satisfied with my experience at university	-0.128	-0.074	-0.080	-0.050
	I have had a bad experience with a university teacher	-0.278***	0.063††	0.002†	0.184††

Significant correlations * p <0.10; ** p <0.05; *** p <0.01 one-tailed, post hoc analysis is based on two-tailed probabilities.
Correlation significantly different to the correlation for BBus students † p <0.10, †† p <0.05

Hypothesis H2 predicted that students who have chosen a career-specific major (Acc and Mkt students) will indicate less likelihood of leaving before completing their degree than those who have not chosen a career-specific major (BBus). The hypothesis was tested by comparing Acc/Mkt versus BBus students' responses to 'I am likely to leave university before completing a degree'. Moderate support for the hypothesis is found: Acc/Mkt students are less likely to indicate an intention to leave (U=4424, p=0.084 one-tailed). Data from the population indicates that actual attrition is consistent with this hypothesis and finding. Average attrition within this Faculty over the past 5 years has been 30% for BBus, 24% for Acc and 26% for Mkt students.

To further explore the impact of choice of major on attrition, we predicted differences in the relative importance of particular factors for students in different majors. For students who had chosen a career-specific major (Acc and Mkt), the strength of the clarity of their career goal (H2a) and reason for attending university (H2b) were expected to be negatively correlated with their intention to leave before completing their degree. Similarly, academic performance was expected to be a particularly important correlate of intention to leave for

Acc/Mkt students because there would be little point in continuing if their career aspirations could not be achieved.

As predicted, Acc/Mkt students who know (don't know) the type of occupation they want indicate less (greater) likelihood of leaving without completing their degree (p= -0.166, p=0.030 one-tailed). On the other hand, the correlation is not significant for BBus students (p= -0.011, p=0.929). Therefore, H2a is supported. Care should be taken in the interpretation, however, since the difference between these correlations is not significant at conventional levels.

Responses to 'I have a clear reason for attending university' are not correlated with intention to leave for Acc/Mkt students and so H2b is not supported.

H2c predicted that academic performance would be more important in determining likelihood of leaving for Acc/Mkt students than for BBus students. This hypothesis is supported. Acc/Mkt students with low (high) academic performance indicate a greater (lesser) likelihood of leaving (p= 0.234, p=0.004, one-tailed). Furthermore, this correlation is significantly different (p<0.05) to the correlation for BBus students (p= -0.099, p=0.413), allowing us to conclude that this is a more important factor for Acc/Mkt students than it is for BBus students. Further analysis indicates, however, that this difference is only significant (at p<0.1) for Acc versus BBus students and not for Mkt versus BBus students. Probing this finding, an interesting difference arises in responses to questions related to perceptions of capacity, as opposed to academic performance. For BBus students relatively strong correlations exist between likelihood of leaving and responses to the questions 'I have sufficient ability to succeed at university' and 'I feel that my academic writing skills are adequate for my university studies' (p= -0.406, p=0.000 two tailed and p= -0.306, p=0.010 two tailed, respectively). Significant correlations between likelihood of leaving and these items also exist for Acc students (p= -0.212, p=0.056 two tailed and p= -0.210, p=0.056 two tailed, respectively), but not for Mkt students, and the differences between any combination of these correlations is not significant.

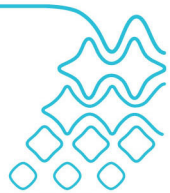
Hypothesis 3

Hypothesis 3 was concerned with the factors that would be particularly important in determining likelihood of leaving for BBus students. H3a predicted that failure to find their courses interesting would be a more important risk factor for BBus students than Acc/Mkt students. This hypothesis was not supported. Responses to 'My courses are interesting' are not significantly correlated with likelihood of leaving for BBus or Acc/Mkt students.

H3b predicted that BBus students who were (not) engaged would be less (more) likely to leave. This hypothesis is partially supported. For BBus students responses to 'I work hard at university' are significantly (negatively) correlated with intention to leave (p= - 0.283, p=0.009 one tailed), but this is not significantly different (p<0.1) to the correlation for Acc/Mkt (p= -0.049, p=0.578). Follow-up tests revealed, however, that the correlation for Mkt students (p= 0.137, p=0.348) is significantly different (p<0.05) to the correlation for BBus students. Responses to 'I participate in class discussions' are also significantly (negatively) correlated with likelihood of leaving for BBus students (p= -0.244, p=0.020 one-tailed) and this is significantly different (p<0.05) to Acc/Mkt students (p= 0.064, p=0.472). Contrary to our hypothesis, however, responses to 'I come to class prepared' are significantly (negatively) correlated with intention to leave for Acc/Mkt students (p= -0.183, p=0.038 two-tailed) but not for BBus students (p= -0.123, p=0.308 two-tailed). The difference between these two correlations is not, however, significant.

H3c predicted that BBus students would be more likely to leave if they have had an unsatisfactory experience at university. Although the pattern of correlations between 'Overall I am satisfied with my experience at university' and likelihood of leaving was as expected (BBus p= -0.128; Acc/Mkt p= -0.074), these correlations were not individually significant, or significantly different to each other. Further analysis was conducted to determine whether specific unsatisfactory experiences would be important in influencing BBus students to leave.

Students were asked to respond to 'I have had a bad experience with a university teacher'. Responses to this question were negatively correlated with intention to leave for BBus students (p= -0.278, p=0.019 two tailed).



This correlation is significantly different ($p<0.1$ and $p<0.05$, respectively) to the correlations for Acc students ($p= 0.002$, p=0.985 two tailed) and Mkt students ($p= -0.184$, p=0.206 two tailed).

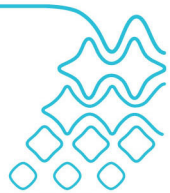
In summary, our results indicate that, as predicted, there are important differences between students who have a career-specific major and those who don't. Those differences help explain differences in the likelihood of leaving before completing their degree and the specific factors that influence their intention. The implications of these differences are considered in the following section.

Discussion

In general, in findings that parallel those of Kreysa (2006), our analysis indicates that students who have chosen a career-specific major are less likely to leave university before completing a degree, and we also find that they have a clearer reason for attending university. Care, however, must be taken in generalisations about career goals and the choice of major. Even within this small sample from a single university, accounting students exhibit greater clarity of career direction than do students undertaking a generic Business major, Marketing students do not. This is consistent with the relatively stronger professional orientation of an Accounting major which ties the capacity to practice to degree completion and professional accreditation. Under these circumstances it is also not surprising to find, as predicted, that Accounting students who are not clear about the type of occupation they want are at significantly greater risk of attrition, as are Marketing students who lack clear career goals. These findings suggest that career guidance activities should be provided, proactively and possibly compulsorily, even for students enrolled in majors which are associated with a clear career path. Such activities are likely to increase retention, and may deepen understanding of the range of career options even for those confirmed in their choice of career.

Clarity in career direction and reasons for attending university do not, however, appear to guarantee interest, as Accounting students were significantly less likely than students completing generic Business degrees to find their courses interesting. This seems likely to be a consequence of the professional accreditation regime, which allows students little room for choice in courses or completion of elective courses, especially when compared with students in the generic BBus who have a wide range of electives to choose from. Although no correlation was found for Accounting students between likely attrition and interest in courses, a correlation was found for Accounting majors between attrition and failure to come to class prepared. Such lack of preparation may be attributable to the amount of time Accounting students spend in paid employment, but lack of course interest arguably exerts an indirect influence on attrition by reducing the motivation for preparation by students who are already struggling to balance competing demands. If this is the case, an obvious solution is to work with faculty to improve course design and teaching quality, but consideration might also be given to reviewing degree structure to enable greater student choice of courses.

The capacity to exercise greater choice over their courses may explain why students in the generic Bachelor of Business find their courses more interesting than do Accounting students, but surprisingly course interest is not a factor significantly correlated with attrition for students in the generic major. Perhaps this can be explained by the awareness of these students that they can change courses if they wish. Alternatively it can be speculated that lack of course interest may indirectly influence attrition, as with the Accounting students, by reducing the motivation of some students to work hard or participate in class discussion – factors which are directly correlated with intention to leave for Bachelor of Business students. Failure to work hard or participate may, however, also be a consequence of doubt about ability to succeed at university or demonstrate adequate writing skills. While these latter factors are also correlated with likelihood of leaving for Accounting students, the strength of correlation for students completing generic Business majors suggests that this is a key issue for them. It appears that students taking generic degrees are not troubled by the lack of an explicit career path for neither lack of clarity in career direction or reason for attending university are significantly correlated with attrition for these students, and thus while career guidance may be of interest it seems unlikely to have a major impact on retention. While activity designed to increase teaching quality may assist to make courses more interesting, it seems that for these students the key change required to increase retention is to increase their academic capability and confidence.



In summary, this research has identified factors that are more or less important in determining the likelihood of leaving for BBus and Acc and Mkt students. These differences highlight the importance of tailored approaches to reducing attrition, even within a single Faculty. Since choosing, and continued commitment to, a specific major is important for reducing attrition, interventions should focus on supporting that choice. In addition to the suggestions made above, a number of strategies for exposing students to their future career options may be useful prior to university enrolment (for example, through high school visits and career counseling). Once at university, career workshops involving practitioners, internships, and part-time work may all be effective means of increasing career clarity for those who lack this, but equally there is a differential need across majors to build confidence and improve teaching quality.

Limitations and further research

This paper contributes to the literature by demonstrating that care must be taken when generalising about the factors associated with attrition. Even within the business degree, which is one of many Bachelor programs, the factors associated with attrition differ in different majors. Further research is needed to further explore these differences, for this will then allow more focused and effective intervention efforts.

The research reported here was conducted in a single faculty within a small, regional university, and its conclusions must be seen in the light of this limitation. Additional research is necessary to determine whether the relationship between intention to leave and experience of university is generalisable across the same majors in different universities, or to majors in other faculties. It may also be that generalisations are inappropriate for certain demographic groups within a given major. Increased sample segmentation would allow the investigation, for example, of the influence of factors such as students who had chosen their major and were already working within their professional field.

Expanding the study to include larger institutions would increase the statistical power of the analysis, thereby allowing many additional questions to be answered. Finally, multivariate analysis focusing on models of attrition could be of particular assistance in shedding light on some of the questions raised in this paper.

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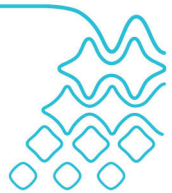

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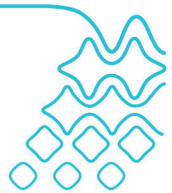

Leading, managing and participating in inter-university teaching grant collaborations

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In this paper we examine the leadership and management of multi-university collaborations funded by national teaching grants. The paper commences with a review of literature relating to stages of project development, key operational issues, impediments to collaboration, and the leadership and management of teaching grant collaborations. Finally, we explore critical success factors in teaching grant collaborations from three perspectives – that of leader, manager, and team member.

Keywords: project leadership; project management; teaching grants

Research collaborations across universities and between universities and industry have a long history and for many years these collaborations have been supported by national competitive research grants. Against this background a body of literature on research collaboration has developed to provide guidance for those leading, managing and participating in such collaborations.

National competitive grants designed to facilitate collaboration across universities for the purpose of developing teaching materials or other forms of educational innovation are, comparatively, a more recent phenomenon. Although there is an increasing body of literature focusing upon cross-sectoral educational collaborations (e.g. school and university), literature on the processes, impediments and facilitators of national teaching grant collaborations is not plentiful.

This paper provides guidance for those leading, managing and participating in inter-university teaching grant collaborations, although it is also likely to be relevant to other collaborations entered into voluntarily and outside formal workplace structures for collaboration (e.g. inter-school or community-based collaborations). Drawing on relevant literature, we examine frameworks for collaboration, impediments to collaboration, and the leadership and management of teaching collaborations. Finally, we present case studies of teaching grant collaborations from three perspectives - that of leader, manager, and team member.

Frameworks for inter-university collaboration

Literature providing frameworks for collaboration generally focuses on the business sector and falls into two distinct groups: that which takes a 'life cycle' approach and details the progressive stages through which collaboration evolves (Pinto, 2007), and that which lists sets of success factors or normative prescriptions for success (Mumford, Scott, Gaddis, & Strange, 2002).

In the limited literature relating to stages of collaboration in higher education institutions, Kezar (2005) empirically tests five business sector models of collaboration and defines three stages of collaboration relevant to higher education institutions. Using critical reflection on an inter-university collaboration developing teaching materials, Westera, van den Herik and van de Vrie (2004) derive four phases in strategic alliances between universities. The two frameworks both identify the fundamental role of existing networks in the initiation phase, but in the middle phases Kezar (2005) emphasises the organisational context needed to support collaboration, while Westera et al. (2004)

focus on the operational activities required to maintain project momentum. Westera et al. (2004), like Pinto (2007), also highlight the importance of taking action to sustain collaboration beyond the 'official' end of collaborative projects.

In the literature providing prescriptions for success or lists of critical issues identified in inter-industry or university-industry research collaborations, operational aspects are emphasised. Connolly, Jones and Jones (2007), in their discussion of further and higher education e-learning collaboration, similarly emphasise the operational aspects of teaching-focused collaborations, as does the Australian Learning and Teaching Council (ALTC, 2008, 2009), the national funding body providing grants for teaching and learning-related activities in Australian higher education. Table 1 relates this operationally-focused literature to the life cycle literature relevant to higher education collaborations.

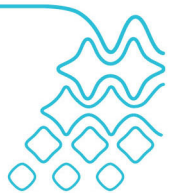


Table 1. Collaboration frameworks and success factors

Life cycle frameworks		Success factors
Westera et al. (2004)	Kezar (2005)	
Pre-alliance - testing collaboration opportunities within existing networks	*Building commitment* using: institutional values external pressures existing networks	• clearly understanding the collaboration's strategic drivers (benefits needed for each partner)[3,8]
Stabilisation defining: agreed goals desired outcomes decision-making authority project development strategies	*Commitment* ensuring: priority is given to the collaboration alignment with institutional mission senior executive support leadership by individuals in existing networks	• defining desired outcomes, expectations[2 4 8] • allocating roles, responsibilities[2,4 ,5,8] • agreeing upon conflict resolution strategies[2] • gaining executive support or a project 'champion'[1,3,5]
Productive development - determining project direction - allocating roles - implementing development activities - supporting learning of those involved	*Sustaining collaboration* through: structures designed to support collaboration rewards (incentives and promotion) existing networks	• developing key performance indicators[7] • establishing effective project management systems[1,5] • ensuring effective internal/external communication flows[1,2,4,7] • documenting decisions and discussion[2,8] • establishing ongoing and summative evaluation mechanisms[7,8] • developing/maintaining trust, confidentiality[3,4,5,6] • respecting cultural/organisational differences[3,8] • providing for staff turnover, withdrawal from the project[1]
Harvesting - ensuring continuation of alliance and/or outputs beyond the funding period		

1.Australian Learning and Teaching Council (2008)
2.Australian Learning and Teaching Council (2009)
3.Campione (2003)
4.Connolly, Jones and Jones (2007)
5.Couchman and Beckett (2006)
6.Couchman and Fulop (2004)
7.Philbin (2008)
8.Starbuck (2001)

In addition to the operational suggestions above, the ALTC (2008) also highlights the importance of continuous critical reflection on project progress, and dissemination as a basis for ensuring sustainability of outcomes. These last two project success factors have counterparts in research collaboration literature remarking the need for ongoing evaluation, and the importance of longer-term sustainable outcomes (Philbin, 2008). In summary, the literature on collaboration provides a set of clearly identifiable factors common to successful collaborations, whether within or across sectors and whether focused on research or on teaching.

In this context it is interesting to note the contributions of Baumfield and Butterworth (2007) and Ritchie and Rigano (2007). Contrasting with the process and operational focus of most discussions about successful collaboration, Ritchie and Rigano (2007) highlight the critical role in sustainable inter-university research collaboration played by perceptions of personal learning, strengthened interpersonal relationships and professional development. Implicitly, they identify what Baumfield and Butterworth (2007, p. 414) make explicit: 'investing time in the development of the partnership is personally and professionally rewarding for the individuals involved but the cost may be too high if the resulting activity does not impact positively on the key performance indicator for [higher education] staff'. If not adequately addressed, the 'what's in it for me?' factor may lead to reduction or withdrawal of effort in the face of competing demands on time.

Impediments to collaboration

Interestingly, although insufficiency of time is noted by some as a barrier to successful collaboration (Shinners, 2006; Kinzie et al., 2007; ALTC, 2008), as Table 2 reveals, the overwhelming focus in the literature on impediments to collaboration in higher education is on interpersonal issues.

Table 2. Impediments to collaboration

Focus	Issue
Project goals	• lack of common purpose[2,3] • conflict related to organisational diversity or cultural differences [5,6,7]
Interpersonal processes	• differences in philosophical approaches[4] • lack of common language and/or values[2,3] • decision-making without consultation[1]
Interpersonal relationships	• unresolved issues around power, who gains and who loses[2,8] • hidden or unresolved conflicts[8]

1.Australian Learning and Teaching Council (2009)
2.Baumfield and Butterworth, 2007
3.Kezar, 2006
4.Kinzie et al., 2007
5.Larsson, Boud, Abrandt Dahlgren, Walters and Sork, 2005
6.Markova and Plichtova, 2007
7.Prins, 2006
8.Ritchie and Rigano, 2007

It is clear from the literature that inter-university collaborations are at risk unless project initiation and prosecution takes into account not just process and operational aspects but also the development and maintenance of interpersonal relationships. It is this latter aspect which is a particular responsibility of project leaders.

The leadership and management of collaborations

Despite the longstanding debate in management literature over the distinction between management and leadership (Yukl, 2009), in higher education collaborations it seems that often the two roles are in practice combined. The need for collaboration among people places a premium on leadership, particularly leadership behaviours involving the definition, construction and refinement of task structure (Mumford et al., 2002). Shaw and Holmes (2005, p. 487) talk of the 'multifaceted role that

change leaders must play' in inter-university collaborations. Hudson (1999), in discussing an inter-country teaching and learning collaboration, argues that a structure/task versus people project management focus is not a dichotomy appropriate in teaching collaborations. Exemplifying this theme, Peters and Le Cornu (2007) describe the critical leadership role played by the project manager of an educational redesign project, highlighting her role in setting directions, redesigning the organisation, and developing people. The identified behaviour and characteristics of Peters and Le Cornu's (2007) successful project manager/leader echo listings in the literature of key leader success factors (Daft, 2008; Yukl, 2009), outlined in Table 3 below:

Table 3. Successful project manager/leader characteristics and skills

Skills	• key operational skills (e.g. financial management, reporting, staff selection) • upwards, downwards and sideways personnel management skills • ability to adapt to changing circumstances • capacity to challenge own and others' thinking • capacity to work autonomously • ability to connect others
Behaviours	• role modelling of desired behaviours • provision of support and guidance • allowing others autonomy • focus on longer-term as well as short-term goals • demonstration of trust and respect • connectedness with others • effective management of own emotions
Attitudes	• willingness to take risks • tolerance of ambiguity • optimism • willingness to learn from others • realistic expectations of others' energy levels and time commitment

Westera et al. (2004, p. 327) similarly comment on the importance of 'both shop-floor support and managerial support', and the need to 'never question or challenge the partners' autonomies'. They further emphasise the need to 'avoid a time-consuming democracy of details', 'not harp on about pedagogical dogmas, but look for common needs' and 'when necessary, lower the alliance's ambitions to proceed'.

Caught between institutional context and granting body expectations, project leaders and managers of inter-university collaborations are often required to deal with 'the tension between autonomy, accountability, and lack of authority structure' (Connolly et al., 2007, p. 160). Because support must be acquired across institutions to ensure the investment of time and resources, persuasion and politics undoubtedly play a role. Much of the work that is key to project success is often invisible to most others, and this may have significant consequences for project managers, research assistants or academic collaborators in a context where reputational and actual rewards usually accrue to the designated project leader rather than those otherwise associated with the project (Madden, 2009). Related to this issue is the potential under certain leadership regimes for uneven distribution of valued opportunities, such as name on research outputs or participation in learning experiences.

Project leader, manager and team member perspectives on an inter-university teaching grant collaboration: case study method and overview

Although general guidelines for project development may be useful, the issues dealt with by leaders, by managers and by team members in collaborative projects are differentiated. The remainder of this

paper presents a case study detailing lessons learnt by the project leader, the project manager and a team member involved in the same six-university teaching grant collaboration.

During the course of the project all three contributors have had regular teleconference and face-to-face contact and discussed the project's progress with each other, but each perspective presented in this paper has essentially been developed individually by the project leader, manager, or team member through her own critical reflection (i.e. analysis, review and questioning of experiences throughout the project). This reflection is underpinned variously by personal notes or diaries, relevant literature, project documentation – such as the grant application, project plan, minutes of meetings, and tables of activities and outcomes – and also by prior experience of working within other inter-university collaborations.

Although each contributor focuses on lessons learnt during the six-university collaboration, reference is made to the experience of other project collaborations when relevant. To facilitate reading and integration of the individual perspectives, Table 4 presents a comparative summary of the critical issues in teaching-focused collaborations from each of the three perspectives: project leader, manager and team member. These issues are elaborated in the discussion which follows.

Table 4. Key issues in collaborative projects – leader, manager and participant perspectives

Issues	Project Leader	Project Manager	Project Team Member
Tensions experienced	a. Responsibility and accountability lies with the project leader who cannot control unexpected institutional policy decisions. Need for succession planning.	a. Managing communication and meeting the diverse needs of participants	a. Institutional support e.g. from supervisor in terms of recognition and workload. Money flows to lead institution: no money = no incentive for project team members
	b. Teaching grant focus on practical rather than research outcomes may add to workload without appropriate recognition		b. Equity - gaining tangible benefits from the project, e.g. (lead) role on papers from project
	c. Funding timelines - no provision by funding body for pre-alliance or post-completion harvesting phases		
Operational and personnel requirements	a. Committed participants in suitable partner institutions	a. Clear trade-offs – commitment despite short-term part-time nature of role	a. Involvement in all project stages including pre-alliance, decommissioning and harvesting phases
	b. Project plan, developed through face-to-face meeting of entire project team	b. Agreed plan to guide actions	b. Face-to-face communication
	c. Effective and efficient project manager	c. Clarification of role and lines of authority	c. Effective and transparent project leadership
	d. Intra-institutional support networks	d. Funded by project and working on behalf of all partners	d. Supportive project manager capable of supplying/eliciting information
	e. Regular face-to-face communication	e. Openness to experience and customer focus	e. Regular communication - how and how often? Emails require long time to achieve consensus between multiple universities.
Individual benefits/ challenges	a. Strengthening/development of personal relationships/networks	a. Development of technical and research skills appropriate to future academic career	a. Stronger interpersonal skills as a result of learning to manage team dynamics
	b. Adapting to changing circumstances		b. Learning by reflection on own performance and that of others
	c. Demonstrating emotional intelligence		c. Dealing with intermittent nature of work and balancing demands

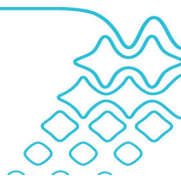
Project leader perspectives on collaboration

Leadership of teaching grant collaborations involves dealing not just with people and process issues, but also a set of tensions which relate to issues of accountability, reward, and project longevity. These tensions set the context for what can and cannot be achieved in any given project, and thus I will discuss these first.

Tensions inherent in teaching grant collaborations
The initiator and leader of an inter-university teaching grant collaboration has the job of 'selling' the idea within his/her own university and ensuring buy in from collaborating universities. Senior university managers are invariably willing to sign off on a well-constructed proposal in the hope of gaining the funding and kudos associated with a national teaching grant, but funding bodies do not require the senior managers who have signed off on a project to report regularly on what they have done to facilitate project success or take up. Therefore, from the moment of sign off, the actual responsibility and accountability for project success lies with the project leader, even when s/he does not have the authority necessary to influence institutional-level decisions which fundamentally affect project outcomes. Thus, as project leader I have had to account to the funding body for different than expected outcomes associated with the withdrawal of a partner institution, the involuntary redundancy of the project leader in a partner institution, and my own transition from full-time to part-time employment. Such incidents highlight the critical importance of building succession planning into a project by engaging at least two or three enthusiastic project participants at each institution. Even this has proven insufficient, however, at the partner institution affected by one retirement, one resignation, two role changes and one redundancy.

A second tension relates to the additive nature of work on teaching grant collaborations. In national research grant collaborations a primary route for dissemination is via research articles, which enhance the promotion prospects of project leaders and participants. In teaching grant collaborations the major focus is usually practical, such as the production of teaching materials, and national teaching grant guidelines often explicitly state that dissemination should not occur primarily through research articles. Leaders of and participants in teaching grant collaborations are therefore involved in substantial (often invisible) activity additional to their usual workload, but not directly related to key promotion and progression criteria. Thus, for many academics, teaching grant collaborations fail the 'what's in it for me?' test. In our collaboration it was possible to legitimately build in a research component and identify research articles as appropriate deliverables. 'Double dipping' in this way is desirable if academic participants in the teaching collaboration are to be adequately recognised and/or rewarded for their involvement.

A third tension arises in relation to the need for pre-alliance collaboration and harvesting of outcomes (Westera et al., 2004). The larger the number of teaching project collaborators, the longer the lead time required in the pre-alliance phase. In this collaboration, funded as a seven-university project for a two and a half year period, an unfunded lead time of 14 months was required to undertake the preliminary activities essential to timely project completion, i.e. design of the project, collaboration building, development of a survey to final draft form, and obtaining of ethical clearances. Although ethics approval was facilitated by forwarding to partner universities the completed National Ethics Application Form and verification of approval at the lead university, ethics clearance at all universities nevertheless took seven months. At the end of the project – which eventually involved six universities following the withdrawal of one university during the first year – it is expected that there will be an unfunded harvesting period of at least 12 months. Progressive harvesting of outcomes and deliverables has been built into the project, but the final and most bountiful harvest occurs a month before project completion, when the full dataset becomes available. Ironically, although the higher education sector depends largely on external funding to underwrite significant teaching innovations, in these funded collaborations it often falls to the partner universities to provide the funding/staff time needed for ongoing dissemination and the longer-term harvesting which the funding body desires.



Operational and personnel issues

National teaching grant funding bodies heed operational imperatives by requiring specification in grant applications of planned outcomes, deliverables, timelines and budget. Collaborations are usually built initially around these specifications, and our project was no exception. Given the detail in our application for funding it seemed self-evident that we had a project plan until, six months into the project, a collaborating academic forwarded a matrix that he had used in planning another project. Two things became apparent: 1) it seemed likely that my understanding of the project plan and outcomes, as leader, was not necessarily shared in detail by collaborators at other universities and 2) the matrix provided the missing tool for aligning outcomes, activities and understandings. Deviating from our plans to hold only videoconferences for national communication, we convened a whole day face-to-face meeting involving all partner universities. At that meeting we completed our own (adapted) matrix. Table 5 presents an excerpt from that matrix.

Table 5. Excerpt from project plan.

Project aims	***Key stakeholders***	***Key performance indicators/outcomes***	***Strategies for achieving goals***	***Deliverables***	***Underlying assumptions (critical to success of project)***
1. Enhance evidence-based practice relating to student retention by b. identifying the factors and combinations of factors critical to students' decisions to withdraw from studies in their first, their second, and their third year of their university studies c. identifying the student learning and personal support interventions that are key facilitators of students' decisions to remain at university throughout the course of their degree studies	Students Support Services Business Schools Senior managers Staff ALTC	Improved student awareness and access to key support interventions Adoption of recommendations from project by partner universities Evidence of project recommendations in key strategy documents in the partner universities	Identify high impact interventions to allow targeted resourcing to improve student retention Communicate evidence-based recommendations from the project to key stakeholders Document take-up of recommendations from the project Inform students of the outcomes of project	Presentation of university-specific findings to staff and students, and discussion of implications of these within partner universities Presentation to discipline network Journal articles Conference presentations Project report to ALTC	That there is: Preparedness to engage in collaborative research Preparedness to share information with partners Maintenance of confidentiality re sensitive data Adherence to ethical practice and principles Frank, honest disclosure of the good, bad and ugly...

Of all operational activities we have undertaken, this project planning and management activity has had by far the greatest impact in ensuring commitment and progress in all partner institutions.

Ultimately, however, it is personnel issues which determine project success, and in this area four issues stand out:

1. Collaboration in this seven-university project was built on the basis of my own established personal relationships with academics at other universities, and I tried to find collaborators who had not just energy and project commitment but also the positional power useful to furtherance of project aims. When trusted others were asked for collaborator recommendations, these recommendations were tested (e.g. the failure of a recommended collaborator to respond to a request within a reasonable time period resulted in the building of collaboration with an alternative person and university). The use of existing networks (Kezar, 2005) facilitates adherence to project agreements and communication when difficulties arise;
2. As suggested by Peters and Le Cornu (2007), the employment of a highly competent, independent, yet communicative, sensitive, and good humoured project manager who works effectively with the project leader and team is critical to project progress and success;
3. Project leader links within the lead university provide an important base for project development e.g. IT Services agreed to host and facilitate restricted access to a project website; the Library worked hard to overcome the copyright prohibitions associated with storing journal articles on the project website and found it was possible for all partners to access articles via an Endnote file and persistent (URL) links as long as all partner universities held the database in which the article appeared. Within each partner university, such links are also very important in smoothing the project pathway and gaining acceptance for outcomes;
4. In a multi-university collaboration face-to-face communication is essential to project progress, support of team members across institutions, and identification of and appropriate response to emergent outcomes (which, by their very nature, are unplanned and unbudgeted for).

On a personal level, perhaps the greatest challenge for me as project leader has been knowing when to stand back and when to intervene, and to manage the emotions associated with this. When anxious about meeting timelines I have sometimes wanted to take action myself rather than allow others autonomy, yet have invariably found that agreed goals were met despite different prioritisation of activities. There is also the challenge of identifying and addressing disquiet – which is often simply a consequence of miscommunication – before it gets out of hand. A project leader, like a project manager, must remain both engaged and alert.

Project manager perspectives on collaboration

Managers play a crucial role in the day-to-day operation of projects which require the co-ordination of resources to deliver successful outcomes. Typically this entails finishing the project on time, on budget, and to specifications. From the perspective of a project manager also responsible for providing research assistance in this inter-university teaching grant collaboration, in this section I will argue that a number of critical success factors were embedded in this project.

Clear role and operational parameters

The reality of working on a teaching grant collaboration with a team of academics is that the collaboration is rarely the single focus of their professional existence. Ongoing work commitments such as teaching and research, involvement in Faculty activities and various community engagement projects compete for time against teaching grant collaborations. Therefore the role of the project manager/research assistant is to be aware of such commitments and their potential impact on the project and team dynamics. In my experience, I took it as a given that as the only funded employee on the grant it was my responsibility to support and drive the process of enabling the project at an operational level. I knew that others would expect me to have an intimate understanding of the architecture of the project, which in this case was clearly articulated in the grant application, and to

efficiently provide them with the resources required to develop publications and other project outputs. One of the most productive group exercises I was involved in at the early stage of the project was a face-to-face meeting at which the team collectively devised a set of agreed outcomes (the project matrix, exemplified in Table 5) and a review schedule.

Holding the dual role of project manager and research assistant, it was also important in my day-to-day work to draw clear distinctions between the individual interests of academics involved with the project and my actual role as research assistant supporting the project. Having the support of a part-time project manager with research skills may have created a unique efficiency for this project, but the challenge as project manager/research assistant was to manage competing demands. The strategic separation between the project manager and project leader roles and a clear line of authority has been a contributory factor in the smooth running of the day-to-day activities of the project. It has also been an important resource for resolving issues around individuals' versus wider project interests and in maintaining collegiality when preparing academic publications and other research outputs.

Another important factor in allowing me to focus on the project was being employed directly through the project grant. This meant that I had not taken on this position in addition to other work in the Faculty. I believe this provided a sense that project ownership was not threatened or jeopardised by a formal employment connection with one specific university. The project manager in effect works on behalf of all of the collaborating universities and, within reason, could equally be expected to work from any of the other collaborating sites.

Communication with collaborators

Two factors critical to delivering benefits to the end client are a project manager's customer focus and openness to experience (Dvir , Sadeh, & Malach-Pines, 2006). Given the nature of a team-based collaboration with six independent sites for data collection, analysis and dissemination, these factors have proven critical to this project in particular.

In this project, having the one research assistant/project manager working on the logistics of preparing data collection instruments and processes has meant that critical information can be transferred efficiently from a central point. This has had a significant and direct bearing on data integrity and fulfilment of the project's ethical responsibilities. By centralising the processes of data collection, analysis and storage, the burden of responsibility has fallen to the lead institution, and this has resulted in the creation of a well-informed lead team of collaborators able to respond quickly to emergent trends or queries from collaborators working at the other locations. My role and the associated knowledge accumulated over the life of the project provided the wider team of collaborators with a single point of contact, which was particularly useful when the questionnaire was in the field. I was able to communicate regular tracking updates and resolve any inputting problems that arose as soon as they were discovered.

At times up to 24 individuals were involved in the project, working in seven different universities across the country. By taking a flexible and accommodating stance I could handle with minimal disruption changes that may have had a significant impact on the project (e.g. questionnaire re-scheduling). Changes in roles, personnel, time zones, contact details and work commitments may also have been lost if the project was not anchored to a consistent point of contact. Being the central point of contact, and a direct link to the project leader, ensured the project network was not disrupted even when project team members at partner universities changed.

Benefit to the individual

Finding a suitable candidate for a specialised project such as this teaching grant collaboration may present challenges, particularly in an economic climate where job seekers are hunting for security and tenure. However, undertaking the project manager's role on a national inter-university teaching grant collaboration has provided a number of personal benefits. In terms of skill development this project provided an opportunity for me, as a novice researcher, to attain relevant research and practical skills important to a future academic career. This position provided an opportunity to test the waters of

academia and acted as the catalyst for my eventual enrolment in a PhD. There was a trade-off between job security and opportunity, and the opportunity offered had the impact of sustaining my commitment to the project and addressing the 'what's in it for me?' factor.

Clearly there have been a number of factors that have contributed to the success of this inter-university teaching grant collaboration. From my perspective as project manager/research assistant, the key success factors have been suitable recruitment, a clear project plan and purpose, good communication, and the opportunity to gain skills relevant to my future academic career.

Project team member perspectives on collaboration

Being a member of an inter-university ALTC project team can be a very uplifting and challenging experience. Such projects are resource intensive requiring many people to devote time and effort to solution generation. As a project team member of several projects I have found that, while issues that arise in one project may not occur in another, there are several key factors which impact on the performance of project team members.

The need for 'real' institutional support

It has long been acknowledged that because of time constraints due to increased teaching and administration, permanent academic staff find it increasingly difficult to engage directly in research (Madden, 2009). Becoming involved in an ALTC funded inter-university teaching and learning project requires an upfront commitment of at least one day per fortnight. While institutions' leaders are very keen for staff members to be involved, appropriate recognition in terms of grant success and workload must also flow. However, the current pattern of funding creates a problem for many project team members. As funding is allocated to the lead institution, team members in partner institutions, although critical to the success of the project, may get little recognition or workload release. Undoubtedly the institution's leaders applaud the success, but when no money flows no incentive follows.

Early involvement of top management and building support among key interest groups are important influences on the capacity of individual team members to deliver, and vital to the success of project efforts in each institution.

Regular communication

As Kezar (2005) suggests, sustaining collaboration requires structures designed to support collaboration. While online facilities provide an effective means of sharing information, how the team communicates and how often the communication occurs 'as a team' ultimately affects team cohesion and the extent to which each of the team members feels included and valued. It can be distracting and time consuming when members from six universities debate points via email to resolve an issue or convene meetings. Because of the diversity of project team membership - with members scattered throughout universities in Australia - often teleconferencing is the best and most cost-effective means to maintain momentum through regular communication. When this does not occur it is easy for team members to become distracted by the many other demands of academia and lose focus.

At critical points in the project's life cycle, face-to-face team meetings are essential. As a team member I found these meetings hugely successful in terms of bringing all team members 'up to speed', celebrating milestones, re-evaluating project progress against set goals, reinvigorating enthusiasm for what the team is trying to achieve and, where necessary, redefining and refocussing the way forward for the next stage of the project.

Project leadership and management

From my perception as a team member, having an effective project leader is critical. From experience I would hesitate to become involved in projects led by persons without a proven track record. Conversely, it is very rewarding working with a project leader who encourages collaboration, demonstrates technical expertise, communicates and manages team dynamics well. The leader's sense-making in terms of team member dynamics is an essential part of effectively managing

interactions among diverse people, including those with strong personalities and views or sensitivities. Project leaders also need to respond to requests for feedback and ensure distribution of relevant information in a timely fashion. Team members should ensure that their expectations for research outcomes are heard, all team members are given the same opportunities, and that leaders do not exercise control over the distribution of project outcomes to enhance their individual goals. Leaders must be perceived to be addressing issues of non-performers, which can in the end affect the outcomes of the whole project. An ability to motivate others by ensuring transparency and maintaining an equitable balance in terms of team members' contributions is also important.

From a team member's perspective being able to access the support of an efficient project manager with sound project management capabilities, a high level of research skills and technical expertise in the area is important. Working with someone who has a high level of interpersonal skills and emotional intelligence motivates team members, including the leader, to produce required contributions in a timely manner.

Project managers play an essential role in facilitating the project's progress by encouraging and responding to communication, implementing appropriate information systems, providing access to project information, and establishing and encouraging team members to use social networks associated with the project. However, managing busy people is always a challenge. An effective project manager is critical to the success of the project as s/he plays a huge part in setting the tone and maintaining the momentum of the project.

The importance of different project stages

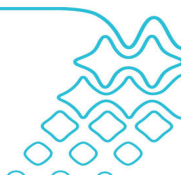
As a project team member of several projects I have found most have taken a project life cycle approach with four stages - defining, planning, executing and termination (Pinto, 2007) – and as a team member you need to engage from the start and play an active role in all four stages. In addition, team members should engage in the pre-alliance phase, the post-project audit and take part in the process of 'decommissioning the team'. As a team member a great deal can be learnt by reviewing and reflecting on your own experience and performance, and by sharing those reflections with other team members. This process is best achieved by face-to-face engagement and should also serve as a celebration for the team. Documenting the decommissioning stage of the project is essential to ensure that each team member shares in 'harvesting' project outputs beyond the funded project activities and it also provides useful information for future project teams.

The need for equity in terms of inclusion, expectations and outcomes

While everyone experiences a great sense of achievement once the project is complete, the report is written and presented to the funding body, tangible benefits for each team member usually flow from research output. As such, when the project is complete, the work has really only just begun in terms of the benefits to be derived. Allocation of lead roles on papers becomes the role of the team under the guidance of the team leader.

Benefits and challenges for project team members

Participating in large ALTC projects has highlighted very strongly for me the importance of managing stakeholders and social capital (Pinto, 2007) and the fact that plans and tools do not complete projects, people do (Larson & Drexler, 2009). In all the teams in which I have participated, the team dynamics have been different. Some leaders are more 'hands on' while in others the project manager takes a much stronger role in keeping the team members focused. Some teams seem to 'click' from the start and enjoy the experience, while others seem to view the role as a job to be done. Whatever the dynamics, the outcomes for me have been extremely positive. The most challenging aspects relate to dealing with the intermittent nature of the work flow and balancing the demands of the project with other work commitments, which is sometimes stressful in terms of coping with feelings of not wanting 'to let the team down'.



Conclusion

Being involved in collaborative teaching and learning projects provides an opportunity to discuss and share ideas, break down barriers between institutions, and engage in meaningful reflective learning. The reflections of the leader, manager, and team member presented here also indicate significant commonalities in experience, despite role differences. An established plan of action, regular communication, role clarification, equity in terms of inclusion and tangible outcomes, and 'real' support from institutional leaders were common threads.

These reflections lead to several recommendations for bodies funding teaching grant and other voluntary collaborations. Grant providers need to consider the relative value of outcomes achieved by short-term (e.g. one year) versus longer-term (e.g. three year) funding, and the possibility of extending funding periods to provide for harvesting of outcomes. At individual institution level, funding bodies might ask senior managers to sign off on tangible ongoing support to ensure staff are able to contribute for the entirety of the project, and to report on what they have done to facilitate the uptake of project outcomes. It is suggested that funding bodies also consider distributing income amongst partner institutions rather than directing it to one lead institution, so that institutional and personal benefits are more evenly spread.

In conclusion, the project leader, manager and team member whose experiences are encapsulated here recognise the potential difficulties associated with inter-university collaborations. We also recognise, however, that being involved in a collaborative teaching project provides a great opportunity to meet colleagues with similar interests, to form a 'community of practice' leading to ongoing collaborations and friendships, and to have fun!

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EVALUATION REPORT

September, 2010
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The Whole of University Experience: retention, attrition, learning and personal support interventions during undergraduate Business studies
ALTC Competitive Grant Project: CG7-395

1.0 Executive Summary.

This large, multi-institutional, three year Australian Learning and Teaching Council (ALTC) competitive grant project, led by the University of the Sunshine Coast (Project Leader Dr Lesley Willcoxson), gathered, analysed and reported on data to examine the factors underpinning attrition in the first, second and third years of a Business degree at six Australian Universities. A total of 7486 international and domestic students completed a 70 item questionnaire that gathered quantitative and qualitative data relating to demographics, experience of university, and use and perceptions of student support interventions. Additionally, in each year, a small number of students were interviewed, while the project also tracked a cohort of students from first year through to the final year of their undergraduate business degree studies.

The project commenced with a project team of 15 academics from seven universities (three from the lead university and two from each of the other partner universities). Institutionally-based reference groups comprised another 16 staff; one academic and the rest drawn from professional staff working in various areas of student support provision (three from the lead university and two from each of the other partner universities). Over the period of the project, there were numerous changes to the composition of both the project team and the reference groups, as a consequence of resignations, redundancies, changes of role, and periods of extended leave, and also due to the withdrawal from the project of one of the partner universities.

Despite these setbacks, this large scale project, driven by a dynamic and committed project leader, has achieved significant outcomes. There is clear evidence that it has had considerable impact both internally, in many of the partner institutions, and externally through extensive project disseminations; the latter including five (5) refereed journal articles, eight (8) presentations to conferences and other fora, one (1) non-refereed article, a project website, an ALTC Exchange Group, and an article on the project in *Campus Review*.

2.0 Project Summary, Final Report and Outcomes.

Six universities (University of the Sunshine Coast, Griffith University, Monash University, Murdoch University, University of South Australia and University of Southern Queensland) ultimately collaborated on this project, which gathered data over three years (2008, 2009, and 2010) across four states from almost 7500 undergraduate business student respondents. The quantitative and qualitative data collected were analysed to identify the similarities and differences in factors associated with attrition over each of the three years of the undergraduate business degree across the six diverse institutions, for both international and domestic students. The project also tracked a cohort of students from first year through to the final year of their undergraduate business degree studies.
As set out in the grant application, the project addressed two Australian Learning and Teaching Council (ALTC) priorities

- research and development focusing on issues of emerging and continuing importance; and
- strategic approaches to teaching and learning that address the increasing diversity of the student body.

The two primary aspects of the project were (Final Report, 2.3)

1. data gathering, analysis and reporting; and
2. review of or changes to learning and personal support interventions designed to address attrition.

As even this briefest of outlines demonstrates, the project was extremely ambitious in scale and scope. Not unexpectedly, the composition of the original project team (of 15 academics) and institutionally-based reference groups (total of 16 staff) changed over the three year life of the project. Specifically, one of the seven original partner universities withdrew, as did the original evaluator. Nevertheless, the project has achieved significant outcomes and there is clear evidence that it has had considerable impact both internally, in many of the partner institutions, and externally through extensive project disseminations.

The value of this project to the sector is considerable – in terms of its processes, products and the internal institutional impacts in collaborator universities. In the post-Bradley era, the government's focus is very firmly fixed on attainment and participation, the quality of the student experience, and student learning outcomes. In this context, the *Whole of University Experience Project* has made an important and timely contribution. It has delivered a rich new evidence base, is able to lay claim to some critical changes having already occurred in individual collaborator institutions, and has had significant research publication outputs based on the data analysis already conducted. The extensive data gathered under the auspices of the project should continue 'to provide evidence guiding institutional decision-making, and a basis for academic publication, for at least a year or two beyond the formal life of the project' (Final Report, 4.3). Critically, the project has directed much needed attention to factors associated with attrition in later years of the student experience (second and third years), and facilitated discussion around frameworks for evidence-based institutional responses that constitute effective interventions in this regard. The project's major findings that factors correlating with intention to withdraw are multifaceted, differentiated both by year and semester of study, and also differentiated by the university attended, have reinforced the need for institutions to collect their own data on the student experience to inform individual institutional responses and interventions. The project has also gathered valuable evidence on student perceptions of the usefulness of various university support services.

Particular factors that have aided the project's success have included

- the strong, determined, and resilient leadership and project management skills demonstrated by the project leader, Dr Lesley Willcoxson, who, it should be noted, contributed to every one of the project disseminations;
- unfunded preparatory work (literature review, questionnaire development, and ethics approval) conducted in advance of the project's commencement;
- early involvement of the original project evaluator and the evaluation framework thereby adopted (see Final Report, 6.1);
- early recognition that annual face-to-face meetings of the partner universities (originally unplanned for) were 'essential' (team member feedback to evaluator, June 2010);

- early development of a more detailed project plan (see Final Report, Table 2) that fleshed out the five project aims (the five 'project purposes' described in the original grant application and set out in the Final Report, 2.2) by identifying key stakeholders, key performance indicators (KPIs), strategies for achieving the KPIs, deliverables, and assumptions critical to success of project;
- the development of a project management website (originally unplanned for) and the development and sharing of an Endnote file that allowed direct access to relevant literature without breaching copyright restrictions;
- a willingness and ability to adapt and be responsive to advice (e.g., received from the reference group), circumstances (e.g., necessity for face-to-face meetings, unexpected institutional diversity discovered in factors underlying attrition) and dynamic change (e.g., changes in project team constitution and membership); and
- insightful reflection at every reporting stage, as is also evident in the Final Report itself (e.g., at 3.5, 4.4, 5.3, 6.1, and 6.2) and which subsequently became the subject of a publication 'Leading, managing and participating in inter-university teaching grant collaborations' (Final Report, Appendix 8.6).

Many of these factors were identified by the project team in the Final Report (e.g., at 3.5 and 6.1); specifically

- the unfunded preparatory work;
- ongoing communication, including value of face-to-face meetings;
- active leadership;
- early involvement of the project evaluator (Professor Geoff Scott) and the subsequent development of the more detailed project plan; and
- responsiveness to changing needs and opportunities (including budget flexibility).

Unanticipated outcomes of this project, which should be of interest to the sector, include

- the teaching-research nexus activity, which saw both first and final year undergraduate students engaged in research at the lead institution through the initial design and administration of the project's questionnaire (described at Final Report, 8.2);
- an innovative research sharing response, initiated by the Library at the lead institution, to work within copyright restrictions regarding storing of journal articles on the project website; all partner universities were given direct access to articles via an Endnote file and persistent (URL) links, on the condition that all partner universities held the database in which the article appeared; and
- learnings in relation to how to enhance online survey response rates. The achievement of recruiting nearly 7,500 respondents to the project survey was said to be attributable to what the team learnt from one another about strategies for increasing sample size: for example, Final Report, 3.4 '...it appears that institutional culture, staff support for the survey, and students' wish to give feedback probably had more impact on completion numbers than did the provision of incentives, and the provision of incentives had no discernible impact on the validity of the data obtained'. This unintended learning had been anticipated in an earlier Interim Report (No 2, 2.2) and is valuable for the sector as many institutions move to the delivery of online surveys (for example, for evaluations of teaching and course design).

Finally, the Final Report also identifies some further opportunities still to be realised out of the project, particularly: the development of an attrition benchmarking tool; and recognition that the data collected retain their value for several years beyond life of project.

3.0 Evaluation and the independent evaluators.

Following notification of the award of the project, the original project evaluator, Professor Geoff Scott (University of Western Sydney), was involved in providing input into the project, the design of the questionnaire, and strategies for evaluation (Final Report, 6.1). In this role, he was a 'valuable contributor and sounding board' (Interim Report No 1, 3.2) and the experience of this project has yet again reinforced the often reported conclusion that it is important to involve the evaluator from the start of the project. Professor Scott's 'quality-focused evaluation framework' (Interim Report No 2, 3.1) involved the following aspects and was specifically addressed by the project team in its own evaluation session at the June 2010 National Meeting (as detailed in Final Report, 6.2).

1. Quality of conception (of what you're doing)
2. Right people in right place with right tools – quality of resourcing
3. Extent to which those involved (stakeholders) have found the project useful
4. What impact has the project had?

When Professor Scott had to withdraw as project evaluator due to competing demands in 2008, I accepted the role of project evaluator in mid 2009. I attended the second national team meeting on 31 July 2009 and, similarly to Professor Scott, also provided input regarding project progress, evaluation strategies, possible linkages and dissemination strategies. I have also had access to the project website, to the ALTC Exchange Group, and have been included in email communications. At a formative level, it is clear from both the Interim Reports and the project's Final Report, that the project's aims, management processes and progress towards outcomes were reviewed iteratively and usefully over the life of the project.

In conducting this evaluation, I have had regard to those interactions and also to

- All documentation related to the project (application, interim and final reports, and publications); and
- The results of an email survey conducted by me and sent to all project team and reference group members.

As regards the nature of the project evaluation, the project application relevantly stated (at p 11) that

> At the time of submission of the final report to the [then] Carrick Institute, the evaluator will be engaged to evaluate the outcomes of the project against both [then] Carrick Institute principles (inclusiveness, long term change, diversity, collaboration, excellence) and grant scheme goals (transparency, value for money, high impact, future looking). Evaluation will also occur with reference to the project purpose...

The (now) Australian Learning and Teaching Council's (ALTC's) guiding principles, as set out in the ALTC Strategic Plan 2010-2013, are – excellence, sustainability, collaboration, diversity and inclusiveness. The ALTC website's Overview of the Grants scheme indicates that the following principles underpin the current Grants scheme

- Compliance with the ALTC mission, objectives and values
- Transparency
- Value for money

- High impact
- Future looking

The first part of this evaluation section will briefly review the project outcomes against the ALTC's guiding principles and the current Grants scheme's principles. Given the effective and efficient way in which the project team have already evaluated their work against Professor Scott's framework in the Final Report (at 6.2) and in the Interim Reports to the ALTC, there seems little point in rehearsing each of those criteria seriatim, particularly the first two aspects. Instead, this evaluation will also examine the project's achievements against the following indicators of success

- Whether the stated outcomes and deliverables were achieved (including Professor Scott's fourth aspect of project impact);
- Extent to which the project team collaborators have found the project valuable to them and their perceptions of the project's value and potential impact in their own institutions and more broadly (a variation of Professor Scott's third aspect, as I am in no position to comment more generally on other stakeholders' (including students') perceptions); and
- Comparison of this project's and team's experience with the 'Key Learnings' and 'Key Challenges' indentified in the 2008 ALTC document Operational learnings of ALTC project holders.

This section will then conclude with some brief observations and comments that might be of value to the ALTC regarding similar projects.

3.1 Evaluation as against ALTC's and Grants Scheme's guiding principles.

The several guiding principles of the ALTC and its Grants Scheme have clearly been met by this project, its processes, and its outcomes. It seems to me that this is exactly the sort of project that the ALTC values and for which the Grants Scheme was designed. For me, the large scale **collaboration** is the standout feature; across institutions and the student life cycle, and sustained despite personnel changes and other challenges – a testament to the dedication and enthusiasm of the project team and its leader.

The multi-university **collaboration** could not have been more **inclusive** (of institutional diversity and type – six institutions across four states; in terms of team and reference group membership (academic and professional staff, at varying levels across the several institutions); and also as measured by student involvement, both domestic and international). The project has had highly visible internal and external **impact** (internally within the collaborator institutions and externally in the sector more broadly). In these ways alone, the project has been extraordinarily good **value for money** regarding the depth and breadth of its engagement and reach, and in terms of the outcomes it has delivered (funded at the usual quantum of $220,000 (ex GST), even though for three years). The emphasis on peer reviewed journal publications (in quality, ERA ranked journals), in conjunction with a fulsome engaged dissemination strategy of face-to-face presentations, are obviously **transparent**, high **impact** and aimed at objectively **excellent** indicators**.** The **future looking** aspect of the project has already been proven; it anticipated the government's current focus on attainment and participation, the quality of the student experience, and student learning outcomes. The criterion of **sustainability** is always difficult to establish over the limited life of any project, however the model adopted by this project's methodology has already produced evidence of some significant and embedded changes in discipline and institutional practice in the collaborator institutions, many at the systemic level. As would be expected, this aspect is variable across institutions.

3.2 Whether the stated outcomes and deliverables were achieved.

The original application referred to

- The 'primary purposes' of the project (at p 1 of the original application)
- 'Project outcomes' (at p 11)
- 'Anticipated project deliverables' (at p 12)

Though the development of a more detailed project plan, which focused on the project's 'primary purposes' (in that document referred to as the 'project aims' and set out in the Final Report, 2.2), was a great strength and, it must be said, a critical factor in guiding the project's ultimate and overall success, this subsequently developed project plan did not directly reflect the 'project outcomes' or the 'anticipated project deliverables' identified in the original application. The relationship between these three project aspects (of purposes, outcomes and deliverables) was not necessarily articulated with great clarity, despite the attempt to do so in the project plan.

In the end result however, this has not mattered: the original project outcomes (set out in the Final Report, 4.3 and said there to have been 'recast as key performance indicators') were largely achieved, as were the project's original 'anticipated deliverables' (set out in the Final Report, 4.2). The only original deliverable not to have been achieved (as acknowledged in the Final Report, 4.2) was the fourth – the 'development of wider teaching research collaborations within partner universities leading to the publication of papers'. This last was an ambitious outcome, and understandably beyond the capacity of the project team to achieve within the constraints of the project's timeline and human resources; specifically, the data that would have informed these joint publications only became available in the second year of the three year project, and there was simply not the time available, in the face of other competing demands, to develop the systematic and wider collaborative and mentoring frameworks needed to support this deliverable. To acknowledge this is not to disparage in any way whatsoever the significant outcomes that have been achieved, but simply to recognise the reality that there is a limit to what can be done over the life of a project, especially one as large scale and multi-faceted as this project was.

For the sake of completeness, I now set out the original project outcomes specified in the grant application (at p 11) and note the outcomes achieved in **Table 1**. The original project deliverables (application at p 12) and what was delivered are set out in **Table 2**. I should say in relation to the latter, that I think there is no issue to be had with the publications and conference presentations not completely matching to those originally proposed. Such statements in a grant application can never be considered to be anything more than indicative. It should be particularly noted that many of the outcomes and deliverables achieved were not anticipated in the grant application (e.g., the project website and the Endnote library), though they may have been foreshadowed in the more detailed project plan developed (and see further below). For example: two unanticipated refereed journal articles arose out of the project's implementation – a paper on leading, managing and participating in an ALTC grant (Final Report, Appendix 8.6) and a paper on the enactment of the research-teaching nexus regarding the development of the questionnaire drafts (Final Report, Appendix 8.2).

Table 1 Original Outcomes from Application and Outcomes Produced

Outcomes specified in original application	Outcomes produced
Identification of the relative influence of varied factors on the decision to withdraw from or remain at university over a three year period, and what might be done to mitigate critical negative influences	Project data gathered, analysed and significant dissemination of analysis has been reported in journals, conferences and other fora. Note sector-wide relevance of analysis, given diversity of partner institutions and presentation of comparative data. General outline in Final Report, 4.0 (esp Table 3).
Better understanding of the impact of student support interventions over time and of the characteristics of successful student support interventions	Project data gathered, analysed and significant dissemination of analysis has been reported in journals, conferences and other fora. Note sector-wide relevance of analysis, given diversity of partner institutions and presentation of comparative data. General outline in Final Report, 4.0 (esp Table 6).
Development of a profile of students at risk of withdrawing throughout the course of their studies and identification of the needs of different market segments	Project data gathered, analysed and significant dissemination of analysis has been reported in journals, conferences and other fora. Note sector-wide relevance of analysis, given diversity of partner institutions and presentation of comparative data. General outline in Final Report, 4.0 (esp Tables 3, 4 and 5).
Changes within each participating university to some of the learning and personal support interventions examined	Material, data and opportunities made available for uptake in each of the participating universities with various impacts achieved, many quite substantial, as set out in Final Report, 4.3. Awareness raising and institutional buy-in generated by way of internal disseminations (i.e., within partner institutions) as identified in Final Report, 5.1.
Establishment of a teaching research concentration within each participating Business Faculty	Not achieved within constraints of project timeline, resourcing and capacity. A number of internal disseminations (i.e., within partner institutions) have been made as identified in Final Report, 5.1.
Growth of a nationwide community of practice which shares experience relating to retention, attrition and student support	Emerging evidence of this in project disseminations. Project website and Endnote library developed to support this outcome.

Table 2: Original Deliverables from Application and Deliverables Produced.

Deliverables specified in original application	Deliverables produced
A report to the [ALTC] on factors influencing retention, and attrition over students' three years at university, and on the longitudinal impact of student support interventions	Final Report
Presentation of findings to a national audience at the annual HERDSA conference and other relevant discipline conferences (ANZAM, ACIS, ANZMAC, AFAANZ)	Eight (8) presentations to conferences and other fora and one (1) article in *HERDSA News* (as per Final Report, 4.2) • *Australian International Education Conference (AIEC) 2009* • *Australia and New Zealand Student Services Association (ANZSSA) Conference 2009* (two papers) • *Australia and New Zealand Academy of Management (ANZAM) Conference 2009* • Workshop facilitated for Victorian Associate Deans Education/Teaching, Monash University, 2009 • Presentation to **Queensland University Libraries Office of Cooperation (QULOC) Education Practitioners, 2009** • The Whole of University Experience Project: Lessons on attrition from first year and beyond. *HERDSA News*, vol. 31, no. 3, 10-12 • Workshop at *Higher Education Research and Development Society of Australasia (HERDSA) Conference 2010* • Presentation to the ABDC Associate Deans Teaching and Learning, 2010. Further state-based workshops (WA and SA) are scheduled. An ALTC Exchange Group has been established: see http://www.altcexchange.edu.au/group/whole-university-experience-retention-and-attrition-first-year-and-beyond
Publication of articles in the Journal of Marketing for Higher Education (on meeting the needs of different market segments), the Journal of Further and Higher Education (on the impact of student support interventions over time), Higher Education Research and Development (on factors influencing retention and attrition in second and third year), and the Journal of Higher Education Policy and Management (on the policy and practice implications of the research).	Five (5) refereed journal articles published/ accepted (1 x A*, 2 x A, and 2 x B ERA ranked journals, as per Final Report, 4.2) – • *Studies in Higher Education* (Appendix 8.3) • *Australian Journal of Education* (Appendix 8.5) • *Higher Education Research and Development* (Appendix 8.4 and 8.6) • *International Journal of Teaching and Learning in Higher Education* (Appendix 8.2)
The development within partner universities of teaching research collaborations leading to publication of papers relating to the impact of university-specific student support interventions.	Not achieved within constraints of project timeline, resourcing and capacity.

In addition to these originally specified outcomes and deliverables, the project plan subsequently developed (Final Report, 2.2 Table 2) also specified the following outcomes (set out at Final Report, 4.3)

- Development of a benchmarking tool;
- Dissemination of information about retention impact factors to national university clusters; and
- Hosting of a symposium on project findings for partner universities to share the outcomes of the project with existing communities of practice and other ALTC project groups related to retention.

The benchmarking tool is currently under development and a journal article in preparation also in relation to it. The second and third additional outcomes have also been achieved by way of the many and various disseminations referred to in the two Tables above (noting that several targeted workshops substituted for the hosting of the proposed symposium).
Taken together with the substantial data gathering and analysis that have been conducted under the auspices of this project, these are significant and impressive outputs and, as feedback from the project team members has confirmed, largely attributable to the project management skills of the project leader, Dr Lesley Willcoxson. It should also be mentioned that *Campus Review* did a story of the grant and interviewed Dr Willcoxson: see Jeremy Gilling, (2010). Building a sense of belonging. *Campus Review*, 19 July, 2010. Retrieved 16 September, 2010 from http://www.campusreview.com.au/pages/section/article.php?s=Faculty+Focus&ss=Humanities&idArticle=17000

3.3 Extent to which the project team collaborators have found the project valuable to them and their perceptions of the project's value and potential impact in their own institutions and more broadly.

The comments under this section are drawn from responses provided to an email survey conducted by the evaluator of the project team's and reference groups' members (conducted over June-July 2010) and from observations of the project team's face-to-face and online interactions since July 2009. As is often the case, the success of a project such as this depends very greatly on the attributes, constitution and dynamics of the project team, their commitment to engaged participation, and their mix of expertise, skills and experience. A critical role, of course, is that of the project leader. It was clear to me that this was, as was stated at the July 2010 meeting I attended, a 'high quality group'. Collectively, the team was enthused to be involved in the project, excited by the richness of the data gathering and analysis that had been undertaken, and energised by the potential to make a real difference to the quality of their students' experience.

Some themes emerged from the project team's and reference groups' feedback to me and my observations of their various interactions, which are now set out.

Strong project leadership is vital. In the particular circumstances of this project (extended project period and multi-institutional), the capabilities and drive of the project leader have been fundamental to the efficacy of project team's engagement and collaboration and to the project's overall success. All members of the project team and the reference groups who responded to the evaluator's survey spoke highly of the project leader and attributed much of the success of the project directly to her. Team members commented

> *... Lesley has shown extraordinary leadership through the project. I suspect her mix of interpersonal skills and task focus is fairly rare. Lesley really took the lion's share of the work on in bringing to conclusion the various tasks of the project such as the initial development of*

the survey and I suspect that this facilitated the collaborative relationships on which the project is based. This meant that people could opt in an[d] out without "punishment" as their other work ebbed and flowed. This is essential in a long term project where enthusiasm can wane and nerves can become frayed.

I think Lesley's ground work (in setting up the conceptual framework and methodology for the study) means that the project has yielded a very rich data set that really could not be improved upon.

Lesley's ability to bring in and work with individuals from the various universities was critical to the success of the project. Furthermore, her commitment to the project and her collegial approach were exemplary.

Lesley was absolutely terrific as Project Leader. She was organised, consultative, and communicated extremely effectively at all stages of the project. More than this she was passionate about ensuring the project was high quality, meaningful and delivered on its objectives. At face-to-face meetings she chaired efficiently and ensured actions were noted and responsibility for carriage attributed. Lesley also carried the lion's share of the work involved in overall data analysis and reporting. Lesley also provided institutions with their data and comparative data along the way which was very helpful.

The Project Leader's tenacity and determination and attention to the writing of papers.

The project leader herself clearly felt this responsibility, acknowledging

I really don't think the project leader role can be handed over to someone such as an RA. If the project leader is not hands on and fully involved, it's really hard to get anything to move forward, and there are responsibilities which the project leader has to accept...

Experience as a project team member. The collaborative nature of the multi-institutional project and the opportunity to learn from other team members were greatly appreciated, as the following comments demonstrate

The constant interaction with project team leaders has been very useful. In particular the various forms of communication channels including the teleconferences and the blackboard [project] site were of particular benefit.

It was an excellent experience for me to see what is involved in executing such an extensive project with involvement from such a broad range of individuals and institutions.

Learning from other institutions in relation to aspects of method and responses to findings [was something that worked well for the collaborator].

Feedback from team and reference group members confirmed their commitment to and belief in the **value of the project**, both within their own institutions and more broadly across the sector, as the following comments evidence

I think the project's identification of retention as a second and third year issue as well as a first year transition issue is fantastic. It brings a maturity to the retention discourse that has been missing before.

The fact that the project involves such a diverse range of institutions, and the longitudinal data, make it of great value and impact.

I think the cross fertilisation of ideas across universities and also between academic and professional staff was very beneficial for this project ... This project also delivered not only valuable data from research but also institutional changes (large and small) as a result of getting access to [t]he data progressively, and also from sharing ideas at f2F meetings.

In my own uni there has been very significant change associated with the project. Because the project was designed in such a way as to have the project team largely involved in investigation and the reference group in implementation it has not, however, always been easy to draw a direct link between the project and a specific outcome ... but my uni is now talking about retention and attrition, which they weren't before, and doing something about it.

The project raised awareness of key issues in relation to retention within our institution and prompted us to talk with service providers which provided them with evidence to support changes to service provision.

Data resulting from this study supported our argument for funding for an initiative which would otherwise not have been provided.

[This project p]rovided evidence to support argument around the importance of the quality of teaching in retaining students.

I feel the project's products in terms of publications and presentations so far have been excellent. Certainly the annual [University X] Reports have themselves been useful internally.

However, there is a strong sense amongst the project team that, as valuable as the project has already been, it is concluding at a time when the most significant outcomes are still to be realised

...we are only beginning to scratch the surface in terms of the implications and conclusions that can be drawn from the data [I]t is already yielding very interesting results.

I believe the most significant products from the project will emerge over the next 18 months as we all have a chance to digest and analyse and publish and present the project's findings.

We have spent two and a half years implementing our project (plus an extra year developing it, unfunded), and now that we are in a position to really contribute something to the sector our project has come to an end and there is no further time or provision for dissemination, publication etc.

When we have presented what we have found/done at national conferences and meetings there has been a great deal of interest – demonstration, I think, of the value of our work to the sector. I just wish I was now in the position to continue work on it.

In terms of what **individual collaborators found to be valuable** to them, as might be expected, responses varied

The journal articles, one of which I have been a coauthor so far, are probably the most important for me personally but I have also been impressed by the interest that the project has received from various sections of my university.

I certainly plan to use findings to inform planning for the support and development service areas I manage - as no doubt will colleagues at [the university] who manage other service areas.

Size of the group provided valuable opportunities for extending professional networks.

3.3.1 What could have been improved?

Respondents to the evaluator's survey were asked, not only what worked well over the life of the project, but also what could have been improved about the experience. This section sets out some of the themes elicited in response to that enquiry. The following material should be prefaced with the observation that, the overall tenor of all of the responses was very positive.

Many of the comments below were not central concerns raised but were offered more as genuine and reflective contributions for possible enhancement.

Given the size and scope of this project, not unexpectedly, a start-up and ongoing challenge was both project management and communication and collaboration strategies. The fact that the project team and reference groups worked through many of these issues is again due primarily to the tenacity and drive of the project leader. Under this head, various aspects were commented on by members of both the project team and the reference groups, including: project induction, succession planning, the data gathering and analysis phase, and budgetary matters. Given that this project would seem to be exactly the type of large scale, cross-institutional collaborative venture that the ALTC might be seeking to encourage, there are some lessons to be gleaned from this experience and these comments.

Project Induction. While project induction might be a matter that may rarely arise in a smaller-scale project, with a handful of individual collaborators in only a couple of universities, in a project of this size it will always be important to ensure that variable commencing knowledge bases are acknowledged and considered. In this project, an enormous amount of preparatory work had already been undertaken before the project officially started, and the project leader was very careful to engage collaborators in the several partner institutions. Even so, and almost inevitably in a project of this size, some collaborators may nevertheless still have felt a little uncertain as the following comment demonstrates

> *As a first time participant in a project of this kind, initially, I probably would have benefited from an orientation to the mechanics of the project (and these kinds of projects in general). These emerged over the life of the project of course, and so an orientation was probably not essential but, I felt I was on the back foot with some time lines and tasks this first time through.*

As team members changed over the course of the project, this may again have been an issue, though no comment was made in this latter regard.

Data gathering and analysis. Unsurprisingly, given the magnitude of the data gathering and analysis exercise (both quantitative and qualitative, across the several institutions and over three years) and the size of the survey administered (70 questions: see Final Report, Table 3), several comments were made about this aspect of the project

> *Although it all worked out, a greater understanding at the outset of the data collection and management processes would have made it more efficient***.**
>
> *Variation across institutions in relation to question structure in surveys and follow-up interviews. Hard to balance the need for individual questions that suit different service delivery models in different institutions but don't think we got that quite right. Some institutions didn't do follow-up interviews. Therefore not possible to compare the qualitative data across institutions. This seems wasteful and while the data is beneficial for those who did, it doesn't allow a cross-university comparison.*
>
> *There were some technical issues in the administration of the survey that resulted in no qualitative data being recorded for [university X] for one set of questionnaires in 2009. This has meant we can't [do] a three year comparison on our qualitative survey data.*
>
> *Survey too long - this means quite a large number of students opened but didn't complete the survey.*

Budgetary aspects. There is clearly an issue for the ALTC to consider in relation to the budgetary allocation for a large-scale project of this type. It was fortunate (and critical) that so much preparatory work was done prior to the project's commencement – quite simply the

project could not have afforded, financially and in terms of human resourcing, to have undertaken that work also. The necessity for face-to-face meetings for project teams has been repeated many times now in project evaluations and some standard, budgetary allocation might be usefully made in ALTC grants to cover these costs, calculated by reference to the size of the team and where team members are located (e.g., Western Australia), so that larger teams and team members whose travel is more expensive are not penalised. The ALTC already makes an allocation for certain team members to attend ALTC activities; this type of reserved allocation might be similarly made for large, geographically dispersed teams. Evaluation comments on this matter included

> *The money probably stretched too thinly because the project involved too many unis over too long a time, but this was also a real strength of the project so I wouldn't change it.*

> *In retrospect we should have built in more funding for face-to-face communication and dissemination. We did allocate more money to these things retrospectively... Perhaps ALTC could play a role in connecting people so that similar issues are not repeatedly confronted by new project teams.*

Organisational aspects. Over the course of this three year project, both minor and major organisational matters arose. The issue of succession planning and attrition was a key issue. As one team member said – it was '*important ...to have 2 [collaborators] from each institution to cover attrition and succession planning*' – however it was also recognised that, in some institutions if not also more generally, this may not always be possible. Comments under this head included

> *Staff attrition during the project has caused several concerns as project tacit knowledge 'walks out the door' without a paper trail.*

> *In terms of processes I would not have predicted that succession planning would be such a necessary consideration in this project. Possibly that could have been improved but the participating institutions need to have the range of personnel to make succession planning possible!*

> *Perhaps we needed an overall project reference group as well as the ref groups at each uni acting as the defacto reference group for the whole project.*

3.3.2 Concluding comment.

However, as the tenor of this report conveys, this project was enormously successful and many of the issues raised under the improvement head did not ultimately detract from the collaborators' sense of the value of the project and the collaborative experience generally. As with all endeavours, with the benefit of hindsight, some things could always have been done a little differently and things arranged to greater advantage. However, it is worthwhile to conclude this section on a positive note and, as one collaborator said in their feedback, offering advice to others who might consider being involved in a project of this nature

> *I would only suggest that they enjoy it – it has been a fantastic experience to be working with such competent and switched on people! It has also been a fantastic learning experience. I would also suggest that they should expect the time to go incredibly quickly.*

3.4 Comparison of this project's and team's experience with the 'Key Learnings' and 'Key Challenges' indentified in the 2008 ALTC document Operational learnings of ALTC project holders.

In 2008, the ALTC undertook an analysis of the 'day to day operations of the grants program, the reported experiences of grants scheme project teams, and feedback from the sector, over the years 2006-2008' (*Operational learnings of ALTC project holders*, ALTC, 2008, 1) and summarised the 'key operational issues specific to project holders'. This analysis revealed the following five key learnings and key challenges for project holders, as reported by project teams (ALTC, 2008, 1), many of which resonate with the current project team's experience:

Key learnings

- *Ensuring senior-level executive and institutional support for the project*
- *Having effective dissemination strategies in place at the outset which promote the embedding of findings and outcomes*
- *Ensuring effective and sustainable communication and collaboration within and external to the project team*
- *Systematic and carefully planned project management*
- *Continuous and critical reflection on the project progress and capacity for flexibility with regard to project management, activities and outcomes*

Key challenges

- *Staff recruitment and staff turnover on the project team*
- *Ensuring project recognition, endorsement and uptake*
- *Dealing with unexpected costs and delays*
- *Managing ethics approvals*
- *Ensuring effective and continuous collaboration and communication with project partners*

Key Learnings.

Under the **key learnings** head, as their reported reflections evidence, in a difficult context and with minimal resourcing, this project team and its project leader worked valiantly to ensure effective and efficient **project management and planning**, and to attend to the demands of maintaining sustainable **communication and collaboration** strategies, both within and external to the project team. The project team and leader repeatedly demonstrated that they were acutely aware of the nuanced and varying communication needs of various stakeholder groups and the attention required to encourage collaboration over the project life cycle: for example

- to 'build intra-university relationships with key service and support sections outside the project group in each partner institution prior to project commencement' (Final Report, 3.5);
- to 'involve the reference group[s]' not only for their expertise and advice, but also as champions and as a 'critical mass' for project implementation and dissemination (Final Report, 3.5);
- to concentrate efforts at key times, such as the data gathering phase;
- *to* 'facilitate genuine input and learning by all partners' by way of the lead institution taking the initiative to share (e.g.) templates of presentations and reports, the literature database, and by then all members taking responsibility for working collaboratively on (e.g.) disseminations (Final Report, 4.4).

As it needed to be for such a large scale, multi-institutional project, careful attention was paid to the development of an effective and efficient project management and communication

strategy that ultimately saw a range of initiatives and channels coalesce: annual face-to-face meetings; teleconferences, telephone and email contact; dedicated institutional visits and continual oversight by the project leader and manager; and the harnessing of a supportive IT infrastructure (especially, in the form of a project management website (that enabled the sharing of documents and ideas to enhance project outcomes, though interaction and postings were limited), and through the development and sharing of an Endnote file that allowed direct access to relevant literature without breaching copyright restrictions).

The project team professed itself 'very happy' with the appropriately multi-faceted communication strategy deployed (National Team Meeting, July 2009). Team and reference groups' feedback comments reinforced how essential these various channels were over the life of the project

> *[What worked well was t]he decision (not in the original project plan) to have annual national meetings where we could come to understand the diversity of needs and opinions, and discover some great ways forward and activities not previously considered.*
>
> *The project website set up initially was useful as a communication point for those of us in the Reference Group. I found we used this less as the project matured.*
>
> *Embracing even more advanced communication technologies (ie Skye etc) will make it an even more productive process.*

It was well observed (Final Report, 3.5) that, in a project of this magnitude, there is a need to communicate both at the national level and also at the local level 'to effectively balance local differences against the need for national consistency, and for national data to be able to be used to increase local impact'.

There is no doubt from the evaluation perspective that this project was very effectively and efficient managed, as evidenced in the following non-exhaustive respects

- the positive feedback received (set out at 3.3 of this report above) as regards the project leader's management capacity and skills demonstrated across the multi-institution project;
- the project's ability to respond constructively to changing circumstances;
- the effective communication strategies deployed generally (as outlined in this section) and especially around team consultation and meetings;
- adherence to the project timeline;
- efficient and effective budget monitoring;
- detailed and accurate record keeping and timely reporting to the ALTC;
- the rigorous and proactive management of the project plan and achievement of the project's deliverables in ways that lead to the required outcomes without compromising cooperation.

In relation to the key learning around having '**effective dissemination strategies** in place at the outset', to a large extent in this project the original application sought to deal with dissemination proactively and effectively, while the project plan subsequently developed (Final Report, Table 2) fleshed out that original strategy in greater detail. **Continuous and critical reflection** on project processes and progress saw dissemination strategies emerge as a revisited theme, in varying contexts, over the life of the project: for example

- '*Disseminate **internally** from inception'* for resonance, sustainability and as an aspect of a broader communication strategy to raise awareness and encourage institutional buy-in (Final Report, 4.4);
- '*Document activity, progress and outcomes on a regular basis'* to make the vital causal link between project activities and outcomes generated (Final Report, 4.4);

- '*Begin dissemination activities as soon as possible'* (Final Report, 5.3); and
- '*Disseminate both within and across universities*...a balance between local and national dissemination is important to facilitate widest possible uptake of project findings and outcomes' (Final Report, 5.3).

The Final Report also evidences plans to disseminate beyond the 'official' life of project, a strategy that is supported by collaborators' feedback (above).
The key learning identified around '***Ensuring senior-level executive and institutional support for the project'*** is the subject of a specific area of advice to the ALTC in the next section (as regards the possibility of requiring institutional leaders to report on what they have done to 'facilitate and sponsor institutional uptake of project outcomes', beyond the initial application sign-off (Final Report, 4.4).

Key challenges.

Under the **key challenges** head, many of the statements in the 2008 *Operational Learnings* document (ALTC, 2008) as regards **staff recruitment and staff turnover** on the project team, including partner institution withdrawal, could have been written about this project.

> *Key challenges faced by current project leaders include partner institutions withdrawing, less than expected level of participation by partner institutions, and unforeseen internal restructuring or work-load changes for team members. (ALTC, 2008, 2)*

Staffing churn and the roles, responsibilities and recognition of project personnel were critical factors in this project's development. There was clear evidence of an intention in the project design to select '*partner staff and universities...who genuinely care about the outcomes of the project and [would] have the time and energy to make sure things happen as and when they should. It is also helpful to have within each partner university a team member with identifiable position power, as this lends credibility to the project and facilitates change arising from the project*' (Final Report, 4.4).

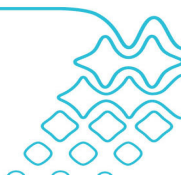
There is also valuable reflection recorded in the several project reports to the ALTC about a variety of personnel matters, including reflection on challenges such as

- appropriate recognition of the different roles and contributions of reference group members, which varied amongst both institutions and individual reference groups (ranging from reference group members working closely with project team members to develop implementation strategies and provide access to dissemination networks, to those who adopted the 'occasional advisory role')

> *A means needs to be found to ensure that active reference group members, and not just project team members, receive appropriate recognition and reward for their involvement in the project.*' (Final Report, 3.5)

- similarly, how to ensure '*equitable distribution of opportunity and recognition*' for project team members (Final Report, 4.4);
- how to juggle and scope the '*project manager/research assistant role'* to fit the funding available, especially in the context of a multi-institutional project (Final Report, 3.5); and
- as highlighted in the feedback from project team and reference groups members above, the need to engage in succession planning: Final Report, 3.5

> *Between the time the competitive grant was awarded and the funding arrived, we had already lost a project team member to employment at another university. Subsequently, project team or reference group membership has been affected by retirement, redundancy, resignation, changes of role, hospitalisation, and maternity*



> *leave. These unexpected changes highlight the critical importance of having more than one project team and reference group member at each university, and also the importance of those involved in the project having built wider enthusiasm for the project so that new recruits to the team can be found when necessary.*

Again, from the evaluation perspective, all of these various challenges were accommodated and managed, at some cost it must be said, to the project leader, who shouldered the brunt of the burden, despite her own difficult institutional circumstances. The project was extremely fortunate to have had someone of Dr Willcoxson's calibre and integrity engaged in this work as the project leader. Various strategies are suggested in the Final Report to help alleviate the effects of such challenges (e.g., distribute the funds as evenly as possible as an incentive to encourage greater responsibility for project outcomes in partner institutions (Final Report, 4.4); spread responsibility amongst specified individuals for ensuring outcomes delivery (e.g., identify a 'paper champion' to drive development of publications (Final Report, 5.3)). However, in the end, as was recognised in this project, the ultimate responsibility for the project achieving its outcomes, on current accountabilities, rests with the project team and the project leader.

Finally under the key challenges head, I mention briefly the subject of **ethics**. This project was in a much better position than many, given the preparatory (unfunded) work that included the obtaining of the ethics approval, in advance of the project's commencement. Even so, an issue in relation to ethics arose – how to protect institutional identity when sensitive data are being presented (Final Report, 5.3). As was commented at the National Project Team meeting in July 2009 – 'ethics is an issue again'. Ethics was an issue that was managed, so there is no evaluation consequence here, but the inevitability of ethics being a somewhat constant 'issue' even in the best planned and managed projects remains a concern for the ALTC Grants Scheme.

4.0 General observations and comments for the ALTC regarding similar projects.

Being conscious that the ALTC has recently suffered its own budget cuts, none of the following comments, many of which have budgetary implications, is made lightly. However, in the interests of securing value for the money that is ultimately allocated, following an increasingly competitive process, and in an effort to seek to assure the quality of the experience for grant team and reference group collaborators, the following observations are made. Many of these, as discussed earlier in this report, are matters that have been raised previously in reviews and/or in other evaluations performed.

The issue of a differential budgetary allocation for larger, more diverse and geographically spread, teams has been mentioned above (at 3.3.1) and will not be repeated here. Similarly, many of the lessons gleaned from the experience of this large project that might usefully be shared with future applicants have already been discussed above and will not be reiterated.

Many of these lessons continue to be common across projects and, building on the analysis set out in the *Operational learnings* document (ALTC 2008), the ALTC might consider it useful to prepare a 'cheat sheet' of handy hints for a project's start up, that is made available to both intending and successful applicants on the ALTC website, to leverage this expanding knowledge base of common implementation issues. In this way, applicants and teams would be informed in advance of key potential challenges and be in a position to proactively devise possible strategies to work around them (e.g, regarding project induction, an annual (or commencing) face-to-face team meeting for team building, succession planning, clarity around responsibility sharing, models for the constitution and role of reference groups, etc).

Other comments on the project experience which should be of interest to the ALTC regarding the Grants Scheme, particularly from this project's collaborators, include the following matters.

The ***value of longer-term projects***

> *Despite the very considerable difficulties we have faced over the three years as a consequence of job loss, resignation and redundancy, I think there is immense value for ALTC in longer-term national projects, and I feel that these are well worth funding.*
> *ALTC consider funding longitudinal studies for longer periods of time e.g. remove 2-year restriction.*

The desirability of embedding further ***accountability for institutional leaders*** regarding projects they have sponsored

> *...critical that ALTC requires funded universities (at DVC level) to report annually on what they have done in their own universities to support the project for which they have been funded and to facilitate wider uptake of its outcomes. We have one uni (XXXX) where they not only made redundant our local project leader, but refused [the person] access to the funds associated with the project. ... It cannot be just the individuals who bring in the money who are held accountable to ALTC for success or failure!!*

A request that the ***ALTC facilitate sharing, dissemination and project processes*** a little more proactively – for example

> *...assistance with dissemination,... community building amongst grantees etc. ... ALTC could do more to facilitate contributions from and learning by all.*
> *ALTC might fund the sort of national events that CAUT funded in the early 1990's – two day workshops showcasing the outcomes of grants. These were extremely well attended (about 500 people?) and... could also be used as a means of building new activities on the base of what has gone before (e.g. if there were a session set aside for exploring future possibilities related to retention and attrition in later years we could share our data and help people identify what they needed to do and how they might construct other ALTC applications relevant to this area).*
> *Provide clear advice to project managers/leaders around the budget required when multiple institutions that are geographically spread are involved. Stress the importance of face-to-face meetings and allowing adequate funding for these.*
> *Provide clear guidelines to project managers re the roles of reference groups. In every project we've been involved in as members of teams or on ref groups the roles and responsibilities of these groups have been very different.*

Some ***practical advice*** also

> *Longer period of time needed between completion of project and completion of final report.*
>
> *The ALTC template for the final report is very poor... Although I have experience using tables of content, it was not possible; the default (and unchangeable) language is US, not Australian, English; they have used anchor points which make it very difficult to paste in certain areas; etc, etc*

5.0 Conclusion.

This evaluation identified specific indicators of success and has assessed the project against them. Within the constraints of time, resourcing, staff turnover, and one partner institution's departure, this project has achieved considerable and significant outcomes and impact. The project team members, the reference group members, and the project leader in particular are to be commended for their enthusiastic, passionate and dedicated pursuit of the project outcomes. There is little if anything to fault in the way this project has been conducted and much to praise. Valuably, from the ALTC's perspective and for the benefit of future projects,

there is a considerable amount of thoughtful reflection and advice that has been communicated in project reporting about the lessons that have been learnt and the critical success factors that have been identified. It is also entirely appropriate and desirable that, as one collaborator has commented '*significant products from the project will emerge over the next 18 months as we all have a chance to digest and analyse and publish and present the project's findings'.*

The Whole of University Experience Project has made a significant contribution to our understanding of the factors associated with attrition over the student life cycle (especially second and third years) and has facilitated discussion around frameworks for effective, evidence-based interventions in response.