Researching Student Success: Process and Outcomes

Dr Donald Joyce
UNITEC Institute of Technology
Auckland, New Zealand
djoyce@unitec.ac.nz

ABSTRACT

At last year's NACCQ conference, a paper and a poster described the work of UNITEC's PASS project, which is investigating Parameters Affecting Student Success. Since then the project has expanded considerably in terms of the numbers of researchers and sub-projects: there are now 18 researchers involved in 13 sub-projects. Each sub-project has a specific research question and is being undertaken by a small team (of two to six members). There is a budget of $10,000 for copying, postage and research assistance and three part-time research assistants have been employed.

This paper reviews the progress made on the various sub-projects and discusses the issues involved in ethical approval, funding, management, and reporting outcomes. Some sub-projects focus on issues affecting specific UNITEC programmes. Others involve matters of wider concern, such as assessment, delivery, dropouts, graduates, language, psychometric testing, and success rates. Approaches have been made to researchers in other tertiary institutions in Australia, Ireland, New Zealand, the United Kingdom and the United States to replicate the research and/or compare results of similar research. An update will be provided at the conference on research outcomes to date.

1. INTRODUCTION

Computing lecturers often find themselves forming opinions about students, how they learn, and how best to teach and assess them, based on anecdotal evidence and impressions formed over years of teaching and assessing. The author has led/directed three of UNITEC's computing programmes (first the Certificate in Computing (CC), then the Bachelor of Computing Systems (BCS), and now the Master of Computing) and has long wanted a more solid basis for decisions about curriculum development, admission requirements, teaching methods and assessment approaches. Some small-scale research into possible correlations between aptitude test scores and performance (Joyce, 1998) showed that there were many areas worthy of further research. In 1999 funding was sought from UNITEC and NACCQ for the PASS project, a team effort to investigate Parameters Affecting Student Success.

2. THE PROJECT IN 1999/2000

Four sub-projects, involving eight academic staff and two research assistants, were launched in 1999/2000:

- Finding correlations between the performance of more than 1200 CC and BCS students and their academic background, age, ethnicity and gender (Joyce, Knight, Kolahi and Shukla, 2000)
- Investigating atttitudes of students towards a compulsory first year business course (Goodwill, 2001a)
- Surveying graduates to find what knowledge, skills and attributes are of greatest value in the workplace
- Exploring what motivates first year students to succeed.

3. THE PROJECT IN 2001

The four sub-projects from 1999/2000 are continuing in 2001, with the second one turning its attention to a different compulsory first year business course (Goodwill, 2001b). Another nine sub-projects have been added:

- Analysing how student attitudes and performance change when moving from mastery assessment to 50% pass (Holden, 2001)
- Identifying whether revised Business Administration and Computing programmes meet staff and student needs better than their predecessors
- Finding out why some students switch from UNITEC's business degree to BCS and vice versa (Joyce and Narayan, 2001)
- Investigating why students choose to take the intensive version (seven Saturdays) of a second year BCS networks course, and how they differ from students taking the same course over 14 weeks (Narayan and Joyce, 2001)
- Surveying and interviewing CC students to establish why they enrol, their perceptions of the programme, the factors that influence their success rates, and where they go after CC
- Identifying how the Blackboard electronic learning system may be used most efficiently to supplement face-to-face teaching and learning (Joyce and Young, 2000; Joyce, Nodder, Williamson and Young, 2001; Holden and Goodwill, 2001; Nodder, 2001; Williamson, Joyce and Nodder, 2001)
- Establishing why students drop out of CC and BCS, and what improvements to teaching and support systems could reduce dropout rates
- Conducting cognitive, learning style and personality tests on students and comparing the results with their success rates
- Analysing attendance and final grades for a first year data communications course to see if they are correlated (Kolahi, 2001).

4. MANAGEMENT

Managing the expanded project has required more meetings, more research assistance, and a bigger budget ($1000). With so many surveys, interviews, focus groups and psychometric tests to conduct, some time has been taken up with checking questions and protocols and with scheduling to avoid clashes or overload on the students (or the research assistants). Once staff in the school realised that the PASS project had several competent research assistants, the project leader was asked if non-PASS data could be analysed by the research assistants. So far the response has always been positive. School clerical staff have also assisted by mailing out surveys.

Ethical approval for research on existing students has been delegated to heads of school, so only the graduate survey has required approval from the UNTEC Research Ethics Committee. The approval process turned out to be lengthy, first because we hadn't specified in enough detail how the responses would be stored (even though they were anonymous), then because they forgot to tell us approval had been granted!

5. OUTCOMES

The results from several sub-projects have been useful in reviewing the content, delivery and structure of our BCS programme, and have been used as part of the formal five yearly review which began in February (Joyce, Goodwill and King, 2001). The same will apply to the CC review, which begins next February. Our TLA (Teaching, Learning and Assessment) coordinator will be using the results of the assessment sub-project, and the On-Line Coordinator is already applying knowledge gained through the Blackboard sub-project. Programme leaders and directors hope that the dropout sub-project will help to reduce dropout rates.

6. CONCLUSION

To use a physics metaphor, the PASS project has gathered momentum and appears to have achieved critical mass. One journal paper has been published, two papers presented at international conferences, six papers and five posters presented at NACCQ conferences, and most important of all, we are improving student selection, advice and support, programme structure, course delivery and assessment. One worthwhile by-product is that many staff with little or no previous research experience have acquired new skills and gained confidence for further research.

REFERENCES

Goodwill, G. (2001a) “The Catchcry: We’re Computing Students - Why Do We Have to Learn Business Skills?” Journal of Applied Computing and Information Technology, 5(1):31-38

Goodwill, G. (2001b) “How Do We Improve Buy-in to Our Business Information Systems Course?” Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Holden, J. (2001) “Moving from Mastery to 50% Achievement: a Student Perspective”. Presentation to Business Administration Conference, Christchurch.

Holden, J. and Goodwill, G. (2001) “Using an On-line Electronic Medium to Enhance Group Work”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Joyce, D. (1998) “Measuring Aptitude for Computing in an Evolving Educational Environment”. Journal of Applied Computing and Information Technology, 2(1):41-45

Joyce, D. (2000) “The PASS Project - Identifying Parameters Affecting Student Success” Proceedings of 13th Annual Conference of the National Advisory Committee on Computing Qualifications, Wellington, NACCQ.

Joyce, D., Goodwill, G., and King, C. (2001) “Reviewing and Updating an Established Degree”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Joyce, D., Knight, S., Kolahi, S., and Shukla,R. (2000) “Patterns of Success: Who Does Best?” Proceedings of 13th Annual Conference of the National Advisory Committee on Computing Qualifications, Wellington, NACCQ.

Joyce, D. and Narayan, S. (2001) “Choosing Between a Business Degree and a Computing Degree”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Joyce, D., Nodder, C., Williamson, A., and Young, A. (2001) “Using an Electronic Discussion Board to Supplement Classroom Sessions With Post Graduate Teacher Education Students”. Proceedings of SITE Conference of the American Association for Computer Education, Orlando, AACE.

Joyce, D. and Young, A. (2000) “Using an Electronic Discussion Board to Supplement Classroom Sessions with Post-Graduate Students”. Proceedings of Australasian Society for Computers in Learning in Tertiary Education 2000 Conference, Coffs Harbour, ASCILITE.

Kolahi, S. (2001) “Student Success Versus Class Attendance”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Narayan, S. and Joyce, D. (2001) “An Investigation into Intensive Mode Course Delivery”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Nodder, C. (2001) “Using Blackboard Courseware in the Delivery of Computerised Reservation System Training”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.

Williamson, A., Joyce, D., and Nodder, C. (2001) “Electronic Support for Learning at Postgraduate Level”. Proceedings of 14th Annual Conference of the National Advisory Committee on Computing Qualifications, Napier, NACCQ.