Student success at university: Using early profiling and interventions to support learning

Ken Purnell, CQUniversity Australia, k.purnell@cqu.edu.au
Roslyn McCarthy, CQUniversity Australia
Mary McLeod, CQUniversity Australia, m.mcleod@cqu.edu.au

Abstract

Two processes were trialled at an Australian regional university to support first year student success in their studies. Upon enrolment, students 'at risk' of failing are identified through their responses to the *Student Readiness Questionnaire*. Interventions are provided immediately to support these students. In a second process, staff working with first year students supported them to engage more effectively in their studies. The findings suggest that early identification of students considered 'at risk' prior to starting their university studies allows the university to focus resources to support these students early. Also, strategies supporting students to engage more fully in their studies from the outset of their degree support higher rates of success.

Introduction

Students come to university intending to succeed (Mupinga, Nora, & Yaw, 2006). About a third of Australian university students, however, do not complete their studies. Extensive research by Lawnham (2004) found that one in seven students in their first year at an Australian university will drop out and one in three will not complete their degree. In their decade long study of first year students in Australian universities, Krause, Hartley, James, and McInnis (2005) observed that interventions early on in a student's studies were effective in supporting student success. Bourn (2007) also found that additional support for students early in their degree improved retention. In this paper we examine two processes trialled at an Australian regional university to support first year students identified as 'at risk' of failing in their studies. These processes were developed from internal research cognisant of relevant literature.

In Australia measures to support first year university students have included:

- intensive discussions and activities with a tutor to assist the students develop better self-management and problem-solving abilities (Potter & Parkinson, n.d.; Wilson & Lizzio, 2008)

- contacting first year university students by phone if they failed to submit their first assessment response or received a failing grade has been found to be a useful strategy to support student success in their studies (Nelson, Duncan, & Clarke, 2009)

- retention strategies to engage and support first year students (Nelson, Clarke, & Kift, 2009)

- interventions at the institutional and personal levels (Christie, Munro, & Fisher, 2004; Wilcox, Winn, & Fyvie-Gauld, 2005)

- the role of social support in the first year experience of higher education (Wilson, 2009)

- better understanding of assessment of first year students by staff and students with the development of a framework to enable students through the assessment process (Wilson & Lizzio, 2010).

In the United Kingdom, The Open University is one of the world's largest universities with over 200,000 students. At that university, a study with the purpose of improving student retention using evidence based proactive systems was reported on by Gibbs, Reagan, and Simpson (2006-2007). These researchers found that while initiatives commenced on an ad hoc small-scale basis in response to student needs, they progressed to a university wide proactive system: "Implemented by specialist staff, backed by cost effectiveness data based on evaluations of controlled experiments, and driven by management information systems" (p. 359). Early intervention with weaker achieving students by their tutors and the use of university wide data proactively to inform interventions was found to improve retention.

In contrast to a number of other studies, New Zealand researchers Prebble et al. (2004) reported that the relationship between intervention programs and student success was indirect at their university. They found that academic development programs influenced teachers' beliefs and, in turn, that it was 'good teaching' that contributed to successful student outcomes. A similar conclusion was reported by DEST (2005, p. 21): "Highly effective teachers and their professional learning do make a difference in the classroom. It is not so much what students bring with them from their backgrounds, but what they experience on a day-to-day basis in interaction with teachers and other students that matters." Similarly, research by Darling-Hammond and Bransford (2005) supported the finding that teaching quality has a major impact on student experiences of learning and their achievement outcomes. Prebble et al. went on to challenge institutions to examine policies and practices to more readily adapt to the fluidity of the diverse human capital brought to them by their students. Interestingly, those researchers also identified significant improvements on student achievement at university from building a sense of belonging and community in the university, providing relevant services, and supportive learning environments catering for the diversity of students had. The need to cater for a changing and diverse first year student cohort was also identified by McInnes (2001). In an earlier study, Wolfgang and Dowling (1981) recommended adjustments for older learners who have a greater depth and breadth of learning experiences such as being parents, the main 'bread-winner', etc. that school leavers do not normally have. While the proportion of school leavers to non-school leavers in first year university studies varies from year to year, at CQUniversity often 60% or more of commencing students are non-school leavers. The findings that students vary in needs within and between cohorts and that intervention strategies should be malleable to suit these variations were considered in our study.

A growing factor in the learning experiences of first year university students is the use of online learning. Many Australian universities have required major changes in the ways teaching and learning occurs to include online experiences (Horstmanshof & Zimitat, 2003). Often a first year student has many competing roles and so, for some, being able to access university learning resources anytime that they wish is an advantage. Others prefer learning with other people face-to-face. Whether online or on campus, student learning needs to be central. While some knowledge and skill development can be readily obtained through solitary work, much needs social interaction (real or virtual). In our study most students have as integral to their studies online learning using a learning management system (Moodle). While some first year students are very familiar with online learning environments including the use of learning management systems in their previous studies, there are a number of students who are not. Supporting students to develop knowledge and skills to utilise required learning resources effectively is important in the experiences of commencing university students and informed the second support process that we examined in our study.

Analysing the comments of 95,000 graduates of Australian universities, Scott (2005) found that students' judgment of quality was concerned with the support that they received. Scott identified that Student Administration and Support were key areas in need of improvement. While Scott's findings emphasised the importance of personal contact over technology, the study found that it was the total university experience that shaped students' judgments, motivation and retention. Scott (p.) suggested that universities committed to best outcomes for their students should have these institutional values:

1. The life of the student should be a whole-of university concern

2. Know your student cohort

3. Take a pro-active stand through early intervention strategies

4. Track your individual student as he/she proceeds through to graduation

5. Channel extra support towards students who are vulnerable to failure and/or attrition

6. Provide quality service staff as the most effective point of contact with the student cohort

The values identified by Scott are utilised in the two support processes that we report on here.

The Australian Universities Quality Agency (AUQA) has listed on its database of good practice the "First year experience intervention and support programme" (Auckland University of Technology, 2007) in which the student management system is used to identify the 'at risk' students that then results in a number of interventions. In this study we identify students who may be considered 'at risk' at the commencement of their degree upon enrolment.

At CQUniversity failing students are interviewed at the end of each term. For example, from 2004 to 2006 fifteen hundred such interviews were part of a research project conducted by the Student Counselling team at the University. These interviews averaged an hour each and covered key areas of the student's ability to remain motivated, their perceived willingness to seek help, their expectations of tertiary study, and general preparedness for life at university study. The analysis of the data by McKavanagh and Purnell (2007) found three common traits in students 'at risk':

1. Maintaining motivation

2. Unrealistic expectations about managing studies

3. Reluctance to seek help

Conversely, it was found that university students build their success on two key factors:

1. the quality of the assistance available from the university

2. the development of student self-confidence, ability and interest

In this study we examine two processes to provide effective and timely intervention to address those traits identified as making students 'at risk'.

From the literature, early diagnostic and intervention practices are critical in supporting 'at risk' students. Our interest was to see how this may be done as early as possible, upon enrolment at the university, rather than when results are available at the end of the first semester or a student fails to hand in their first assignment. We report on two processes trialled at CQUniversity to profile students readiness for study upon enrolment by the use of the *Student Readiness Questionnaire* (*SRQ*) developed in house, and targeted interventions to support student success in their university studies.

The project: Using the *SRQ* and early intervention strategies at CQUniversity

The *SRQ* was developed and a trial implemented at CQUniversity for all commencing students from 2008. The *SRQ* is an online questionnaire with 19 questions that students are required to complete upon enrolment as they commence their university studies. A profile of readiness for university studies was created for each student that enabled professional staff to assess each student's apparent readiness for university study. The *SRQ* is based upon the structured questionnaire used by professional staff in the interviews conducted with 'at risk' and successful cohorts of students discussed in the following sections.

Building a profile of a successful student

In 2008 staff from the Student Support Centre at CQUniversity conducted interviews with 94 students who had successfully completed their degree. The interview data produced a total of 210 individual references. Analysis of the interview data done by professional staff identified three key themes of student perceptions of factors that underpin academic success. These were:

1. determination is critical to academic success. This was reported as the major factor by the majority of interviewees. Descriptors from students included discipline, diligence, resilience, dedication, and robustness. Other respondents used descriptions such as a 'love of subject matter' and 'passion for chosen discipline'. Interviewees often referred to their 'genuine enjoyment of learning' and 'commitment to lifelong learning'. Intrinsic motivation is evident in these descriptors. What is interesting is that its corollary – extrinsic motivation – is a predictor of failure and unsatisfactory progress in a study by McCarthy et al. (2006).

2. realistic expectations and a willingness to engage fully in the learning experiences with descriptions such as 'sound organisational and time management skills' and 'make study a top priority'.

3. support networks of the university plus the individual support and understanding provided by academics, student peers and family members. Students were able to seek help early because of their knowledge and confidence in using support mechanisms. It is critical that strong, not weak, messages be sent to all students about the availability of support networks and ease of access.

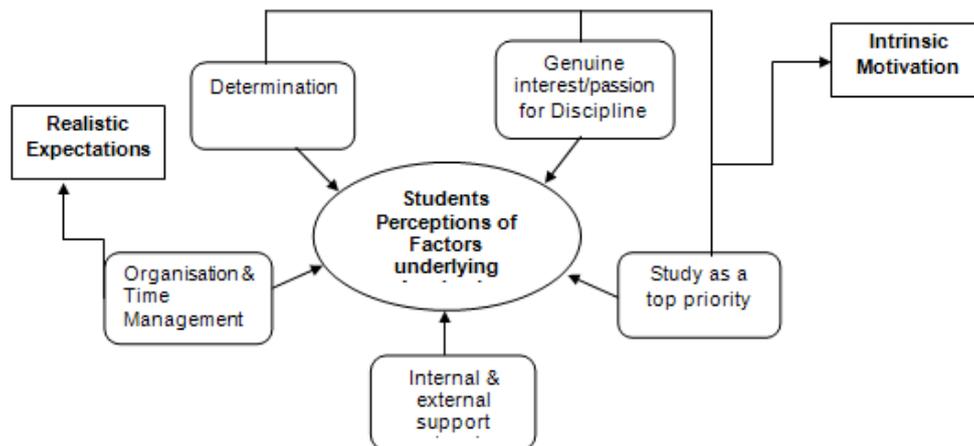These factors are presented diagrammatically in Figure 1.

Figure 1: **Successful Academic Progress model**

From the Successful Academic Progress model three key elements were used to inform the development of the questions for the *SRQ.* These were in the areas of:

1. the quality of assistance available from Lecturers and staff. This included knowing their students and what influences failure

2. building student confidence and motivation through realistic expectations

3. developing a love and passion for learning through intrinsic motivation.

Examples of questions in the *SRQ:*

- How many courses (subjects) do you intend to enrol in during your first term at university?

- How many hours a week do you intend to devote to study for each subject you will be undertaking?

- If you intend to undertake part-time or full time paid work whilst being a student, please indicate the number of hours you will be working per week.

Using the SRQ *and support processes*

The data from the *SRQ* provide quality information on each student's readiness for university studies. From their responses to the SRQ, students were classified into one of three categories in terms of readiness:

- **High**, or
- **Medium**, or
- **Low**.

The analysis of individual student responses to the *SRQ* provides data to inform decision-making in two main areas:

1. Identification of individual student learning needs

2. Information on potentially how to best respond to those needs

At the beginning of 2008 students who enrolled in CQUniversity were sent an invitation to complete an online version of the *SRQ*. Fifteen hundred and eighty four (1,584) students participated. Participants were subsequently sent an email that firstly congratulated them on choosing to study at CQUniversity, and secondly, students identified with medium or low readiness for university were provided further information. Low readiness students in the email were provided with contact details for continuing support. Students identified as having medium readiness for commencing study were referred to resource areas and/or information surrounding their particular areas of need (for example, students expressing concern about assignment writing were referred to the University's *Communications Learning Centre*, and those needing numeracy support to the University's *Mathematics Learning Centre*). Those students who indicated low readiness were specifically targeted and assisted with the various intervention strategies that would support them as they commenced their university studies.

The *SRQ* results were analysed using specialised computer software developed for that purpose. It was in the analysis of the data that a possible problem was identified: Results were skewed towards the top of the categories and expert judgments by staff involved in the interviews suggested that this was not accurate. This appeared to be the result of demographic and mode of study information not being automatically accessed from the enrolment data. An external mode of study is a criterion which places students in a 'more chance of failing context'. As the SRQ did not ask for mode of study the initial computer generated results appeared anomalous as identified by professional staff. The results were:

Low readiness: 12
Medium readiness: 984
High readiness: 600

That few students identified as being of 'Low readiness' was contrary to expectations based on historical data and the interviews discussed above. Using the historical and interview data, we had had anticipated roughly a third in each of the three groups. To address this apparent anomaly, *SRQ* responses were subsequently read by people and hand scored. A greater weight to high-risk combinations such as external study mode and fulltime study combined with fulltime work was given than was done in the computer program. Through more investigation of student profiles and professional judgment process the same *SRQ* data yielded the following results:

Low readiness: 496
Medium readiness: 500
High readiness: 600

That is, roughly a third of the cohort in each of the three groups which aligned more with historical data and the analysis of interviews.

The computer program for the *SRQ* was then further refined. In order to improve its effectiveness and efficiency the software now incorporates valuable demographic data such as age categories and the study/work balance. Furthermore, the refined program replaces time consuming individual email processes with

computer-based instant feedback to the students. This is something that people have come to expect from quality surveys these days. Feedback to the student incorporates rankings with suggested strategies that would assist the student in commencing their university. For example, a student may receive in their email a statement that is generated using the software such as "You have rated in the low category in academic goal-setting. This suggests you may be unsure of the program you are enrolled in. We suggest that you access the careers counselling service that is available at CQUniversity (contact details provided)."

While the data analysis automatically generated from the *SRQ* software will continue to be refined, it currently provides that 'big picture' use in which we are interested. It enables the University to categorise each student's readiness for studies. It provides instantaneous feedback along with initial recommendations for action by the student to access particular services available in the University to support their learning needs.

Responses to this information by the university have included:

- the development of new subjects in first year designed to support student success in their studies

- reworking of existing subjects in first year including the consideration of the best teaching staff to deliver the learning experiences

- pastoral care by staff for first year students in some programs such as pre-service teacher education particularly to support their transition from school or other duties to university;

Improving teaching and learning practices by, for example, the introduction of our new online learning management system – Moodle, focussing on the University's generic graduate attributes in subjects and degrees (see CQUniversity, 2010b), incorporating a modified version of the *Seven principles for good practice in undergraduate education* (Chickering & Gamson, 1987), and 'closing the gap' between student feedback in subjects and how that informs present and future offerings of the subject.

The University has had for many years intervention strategies such as learning skills support, mentoring and study groups (face-to-face and virtual as necessary). The very successful Skills for Tertiary Education Preparatory Studies (STEPS) program (CQUniversity, 2010a) that prepares students for university study has used information from the *SRQ* to intervene earlier to offer academic skill sessions. Additional processes and practices have been initiated, especially by staff involved in the project that developed the *SRQ*, "The student learning journey" that aimed to provide early intervention with first year students. For example, low readiness students are directed towards alternate bridging programs to assist in setting them up for success in their university studies. Specifically designed new subjects such as *Principles of university learning* were introduced that not only help students learn about what Western universities do and are like, but familiarises them with the main learning and assessment strategies that they will experience in their degree. The subject was made compulsory in first year in a number of degrees such as pre-service teacher education. Other first year subjects have been redesigned to target such basics as personal preparedness, information literacy, science literacy and writing and presenting in an appropriate academic genre following relevant conventions. In pre-service teacher education where a Pass is 80% correct in a literacy test, additional classes and tuition sessions to develop test-wiseness, specific functional grammar knowledge and skills, as well practicing writing to a high standard, were provided.

While a number of initiatives to support student success in their university studies are a result of the *SRQ* innovation, other recent ones complement it. For example, a current project that explicitly embeds in subjects and degrees the CQUniversity Graduate Attributes (CQUniversity, 2010b) combined with a modified version of the *Seven principles for good practice in undergraduate education* (Chickering & Gamson, 1987), has its antecedents in the *SRQ* innovation.

Conclusion

From the two processes trialled to support first year university student success in their studies it is clear that identifying students 'at risk' of failing from their profile upon enrolment has much to offer. The specific strategies to support students will vary within and between universities, but the important issue is very early identification of potential 'at risk' students. An enrolling student's answers to the SRQ in this study provided a profile of their readiness for university studies and information about any factors that may make them 'at risk'. For example, a school leaver used to face-to-face classes who enrols in all their subjects in the external (distance) mode, and is taking on more than a full load in their first semester and is also doing some part time paid work has a profile of being 'at risk.'

Once a student is identified 'at risk' then measures should be taken immediately by the university to support them to be more likely to complete their studies successfully. The specific measures that may be taken to support students considered 'at risk' will depend upon the nature of factors contributing to that. The literature provides a wealth of evidence-based research on the impediments to student successes in their university studies. These are many and varied from personal factors of the student such as family commitments, institutional factors such as assessment of first year students, and community factors. In this study the focus of intervention strategies was to engage more effectively in their studies. This included students developing more realistic expectations about managing their studies, maintaining motivation, and being directly approached to receive help as students 'at risk' are often reluctant to seek assistance. By actively engaging commencing university students more fully in their studies early supported higher rates of student success. Minimising the time lag between identification of students considered 'at risk' and taking proactive measures to support student success is critical.

Future research may look at other ways of early identification of students considered 'at risk' as well as other factors influencing the academic success of students and the affects of early intervention. Also, it may be interesting to explore if fewer fails in subjects and less attrition from a university positively contribute to the overall university experiences of all students.

References

Auckland University of Technology. (2007). *First year experience intervention and support programme*. Retrieved from http://auqa.edu.au/gp/search/detail.php?gp_id=2907

Bourn, J. (2007). *Staying the course: The retention of students in higher education.* London, UK: The Stationery Office.

Chickering, A.W., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39(7*), 3–7.

Christie, H., Munro, M., & Fisher, T. (2004). Leaving university early: Exploring the differences between continuing and non-continuing students. *Studies in Higher Education, 29,* 617–636.

CQUniversity. (2010a). *Skills for Tertiary Education Preparation Studies (STEPS).* Retrieved from http://steps.cqu.edu.au/FCWViewer/view.do?site=44

CQUniversity. (2010b). *CQUniversity graduate attributes.* Retrieved from http://learning.cqu.edu.au/FCWViewer/view.do?page=7950

Darling-Hammond, L., & Bransford, J. (Eds.). (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco, CA: Jossey-Bass.

DEST. (2005). *School innovation: Pathway to the knowledge society*. Available at www.dest.gov.au/sectors/school_education/publications_resources/school_innovation

Gibbs, G., Reagan, P., & Simpson, O. (2006- 2007). Improving student retention through evidence based proactive systems at The Open University (UK). *Journal of College Student Retention, 8*, 359–376.

Horstmanshof, L., & Zimitat, C. (2003). Do extracurricular roles impact on retention? A social exchange theory in perspective. Paper presented at 7th *Pacific Rim first year in higher education conference*. Queensland University of Technology, Brisbane.

Krause, K., Hartley, R., James, R., & McInnis, C. (2005). *The first year experience in Australian universities: Findings from a decade of national studies*. Retrieved from www.dest.gov.au/sectors/higher_education/publications_resources/profiles/first_year_experience.htm

Lawnham, P. (2004). *Investing in your further education*. Sydney, NSW: John Wiley & Sons.

McCarthy, R., McLeod, M., Billman, S., & Munro, R. (2006). *Know your students: A thematic analysis of factors that impact negatively on student success at CQUniversity*. Rockhampton, Qld: CQUniversity.

McKavanagh, M., & Purnell, K.N. (2007). Student learning journey: Supporting student success through the student readiness questionnaire. *Studies in Learning, Evaluation, Innovation and Development*, *4*, 27–38.

McInnes, C. (2001) *Trends in the first year experience: In Australian universities.* Melbourne, Vic: DETYA.

Mupinga, D. M., Nora, R. B., & Yaw, D. C. (2006). The learning styles, expectations and needs of online students. *College Teaching, 54*, 185–190.

Nelson, K., Clarke, J.A., & Kift, S. (2009). *A holistic approach to the support and engagement of first year students: A retention strategy* [Abstract]. Retrieved from http://eprints.qut.edu.au/28421/1/c28421.pdf

Nelson K., Duncan M., & Clarke J. (2009). Student success: The identification and support of first year university students at risk of attrition. *Studies in Learning, Evaluation Innovation and Development, 6*, 1–15.

Potter, A., & Parkinson, A. (n.d.). *First year at risk intervention pilot project: An intervention to support first year students experiencing early assessment failure*. Retrieved from www.fyhe.com.au/past_papers/papers10/content/pdf/4B.pdf

Prebble, T., Hargraves, H., Leach, L., Naidoo, K., Suddaby, G., & Zepke, N. (2004). *Impact of student support services and academic development programmes on student outcomes in undergraduate tertiary study: A synthesis of the research*. New Zealand: Ministry of Education.

Scott, G. (2005). *Accessing the student voice: Final report.* Sydney, NSW: University of Western Sydney.

Wilcox, P., Winn, S., & Fyvie-Gauld, M. (2005). It has nothing to do with the university, it was just the people: The role of social support in the first year experience of higher education. *Studies in Higher Education, 30,* 707–722.

Wilson, K. (2009). Success in first year: The impact of institutional, programmatic and personal interventions on an effective and sustainable first-year student experience. Keynote paper presented at the *12th Pacific Rim First Year in Higher Education 2009 Conference: Preparing for tomorrow today: The First Year Experience as foundation*. Available at www.fyhe.com.au/past_papers/papers09/content/html/keynote.html

Wilson, K., & Lizzio, A. (2008). A 'just in time intervention' to support the academic efficacy of at-risk first-year students. Paper presented at the *11th Pacific Rim First Year in Higher Education Conference*. Hobart.

Wilson, K., & Lizzio, A. (2010). Assessment in first-year: Staff and student perceptions of appropriate and effective practice. Keynote paper presented at *ATN Assessment Conference*. Available at www.iml.uts.edu.au/atnassessment/keynotes.html#wilson-lizzio

Wolfgang, M. E., & Dowling, W. D. (1981). Differences in motivation of adult and younger undergraduates. *Journal of Higher Education, 52*, 640–648.