Planning for the Transition to Tertiary Study: A Literature Review

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Introduction

Problems associated with the transition process from secondary school to the first year at university are not new in Australia — see for example Powell (1979) — but the issues change with time. Transition problems can be devastating for individuals and their families, and can result in enormous social and economic waste (Pargetter 1995). A 1997 study by the Higher Education Funding Council for England (HEFCE) estimated the direct costs to taxpayers of higher education non-completion to be about 90 million pounds a year.

Research on student transition, attrition and performance generally and in various discipline areas and educational institutions, has generally increased in quantity and methodological complexity in recent years. The findings are not always consistent, and international studies need to be analysed carefully to ascertain their validity in the current Australian context. As noted by Clarke et al (1994), a significant problem related to reviewing the international literature results from different types of admission policies. Many overseas institutions, particularly in North America, have an open-door as opposed to the Australian competitive, and hence selective, admission policy. Another relevant difference is the residential nature of the institution — much of the American research is undertaken in two-year residential (liberal arts) colleges.

This review focusses primarily on the recent Australian literature and key works from the plethora of overseas material, and is based on the excellent literature review of Clarke et al (1994).

Overview

Research on transition, attrition and performance in tertiary education is extensive, and research studies and applications based on different theoretical models can be found in the education, psychology, sociology, statistics and economics literature.

Most of the literature relates to academic performance, which is measured in terms of grades, pass rates etc., and to persistence or attrition, which are generally (but not always) defined in terms of voluntary withdrawals, rather than failures or exclusions. Measuring attrition is difficult and complex and the data obtainable is of variable quality — data can include students ‘dropping out’ temporarily or permanently or transferring to other institutions and can be affected by external changes.

Transition and attrition research studies are mainly from the USA, but also from the UK, Canada, Israel, Hong Kong and Australia. Much research since 1975 has been based on particular theoretical models, such as those of Tinto, Spady, Bean, and on their empirical validation by Terenzini, Pascarella and others, both generally, and in particular contexts.

In general, these studies suggest that students’ persistence and performance are related to their background characteristics, disposition on entry, goal commitment and experiences after entry — including academic and social integration — as well as to external and institutional factors. Research indicates significant differences in the sources and frequency of difficulties for different groups of students, depending on factors such as their academic and social background, and personal and personality characteristics.
Other factors relate to the nature of the institution — its residential character, size, and selection policies — as well as to the type and nature of the course and discipline area. In the USA this research has resulted in a variety of institutional strategies for selection, orientation, mentoring, academic and social transition assistance, early contact and community building, academic involvement and support, monitoring and early warning counselling and advising, and integration of programs.

Analyses

Early theories on transition were based in psychology, focusing on individual personal characteristics. From the mid-seventies, the emphasis shifted to sociological factors, and more recently it has focussed on the institutional context and the students’ integration. Tinto (1993) synthesised much research on the theory of student departure, emphasising the role of the institution and social/academic integration of students, particularly the interaction between the students’ attributes, skills and dispositions and the institution’s academic and social systems.

Research has been extensive and varied, generally focusing on specific aspects of transition, persistence and academic performance in particular contexts. Some common themes and factors emerge from the literature, but variations in findings occur in different countries and cultures and by discipline, institutions and student categories. Some conflicting results may also be due to theoretical and methodological issues.


Factors Identified as Significant

Transition to University study is complex, and varies according to several factors and their interaction. This is evidenced in the following review, as is the divergence of findings. Calderon’s (1997) recent large-scale Monash comparison of student progress-rates identifies the stereotypical successful student in terms of personal characteristics such as gender, socioeconomic status and school background, and shows that these vary by faculty. Following Clarke et al (1994), variables identified as relevant in the literature are grouped in categories.

(i) Student Demographic Characteristics

A variable for age is included in most studies, but the results are mixed, partly due to analytic problems of definition and control. For example, sometimes analysis includes ‘mature age’ students, a variable which often but not necessarily includes students without ‘normal entry’ qualifications (see McClelland and
Kruger 1993). With increasing alternative entry pathways to higher education, a variable based on entry type is more appropriate in such cases. Maturity is suggested as a factor in student success: hence the argument for deferring university studies for a year after secondary school. Linke et al (1985) found that 5000 deferring South Australian students generally perceived deferring as ‘valuable personal experience with relevance also to their ability to cope with subsequent studies’ but also that deferment acts as a filter, diverting female non-metropolitan students from entering higher education. Age appears to have little predictive power in some studies for success (West et al 1986). However Clark and Ramsay (1990) found age correlated with performance in most institutions and courses. Shah and Burke’s (1996) national Australian study using input-output analysis found a 20 year old commencing student has the highest probability of completing a course, and that such probabilities vary with the age of commencement.

With regard to linguistic and cultural backgrounds, Aboriginal and Torres Strait Islander (ATSI) students have been consistently reported as being less successful (McClelland and Kruger 1993) and less persistent (Abbott-Chapman et al 1992). Price et al (1992) studied attrition in the Northern Territory. Birrell’s (1994) Monash study indicates Greek and Asian students have a high entry and low attrition rate, and discusses the issue of family support and motivation. Dobson and Sharma (1995) found that generally students in equity groups performed less well than others nationally.

In some studies gender did not appear to predict performance or persistence (West et al 1986). However females dominated males in performance in Everett and Robins (1991). Clarke et al (1994) considered that the mixed results reported can be attributed to confounding factors and methods of analysis, and that any interpretation must avoid being simplistic. Shah and Burke (1996) found that, overall, females have a higher chance of completing a course, and take less time to complete it, than a male of the same age at commencement. However, though generally true, the opposite holds in some cases in some discipline areas – e.g. males in Business, Law and Engineering. In general, females have a higher chance of completion in Architecture, Arts, Education, Health and Science. The pattern appears less uniform across other ages for other areas. Significant gender differences have been found in some discipline areas, but others have omitted gender, although it might have been relevant (Auyeung and Sands 1993). Scott et al (1996), in a study of mature age female students with children, found the three major factors for withdrawal were socioeconomic class, a non traditional major and age.

The North American literature is inconclusive on the relevance of type of school to persistence. In Australia students from government schools generally appear less likely than those from non-government schools to enter tertiary education (Elsworth and Day 1983), but more likely to persist and also to perform (Abbott-Chapman et al 1992, West et al 1986), except in the Tutton and Wigg (1990) study of medical students.

Although the focus here is on school to university transition, special entry is an increasingly important category in many tertiary institutions. Hitherto this variable was rarely included in studies because of the small numbers involved. This will change in at least some institutions with the increasing emphasis on recognition of prior learning and credit transfer, the expansion of pathways to tertiary education, and lifelong learning. McClelland and Kruger (1993) in their study of the 1990 Queensland tertiary admissions cohort, found tertiary performance slightly negatively correlated with tertiary entrance index and performance for a group of 119 ‘mature age’ students (here indicating a lack of formal qualifications). They also found that compared with regular school entry students, students with previous post-secondary qualifications (particularly other tertiary rather than TAFE) were more successful, but students previously excluded from tertiary institutions less successful.

Relationships between indices of socioeconomic status (SES) and tertiary entry, performance and persistence are discussed in a comprehensive literature review by O’Dowd (1996). Higher SES students have been found to have an increased probability of achieving success (McClelland and Kruger 1993). Most of those withdrawing for financial reasons were from low SES backgrounds (West et al 1986), and this is also the case in the UK according to a 1997 report by the Higher Education Funding Council of England (HEFCE). Young (1991) found, using multilevel analysis, that a composite measure of socioeducational level, parental occupation and education, and number of books in the home had a significant effect.
Elsworth and Day (1983) found that rural students were more likely to decline tertiary place offers. This could be related to a financial support factor. A location variable can be a concomitant of others, such as: socioeconomic status, where home postcode is often used as an indicator (McClelland and Kruger 1993); financial support (e.g. West et al 1986 found a significant number of students attributing finance for deciding to withdraw or transfer to an institution nearer home); and social integration.

(ii) Student Psychological Characteristics

Academic preparedness, and, more particularly, learning strategies and locus of control, were identified as important in several studies. Significant numbers of students who voluntarily withdrew from full-time study cited unsatisfactory study skills and a lack of prerequisite knowledge as reasons (West et al 1986). The 1997 HEFCE study found a major factors in non-completion was a lack of preparation and necessary study skills for higher education. Studying and learning approaches at tertiary level appear to be strongly influenced by practices at secondary school (Ramsden 1991, Ramsden et al 1989) and a mismatch may create problems.

Achievement was found to be best explained by metacognitive ability by Murray-Harvey (1993) using a cluster of ten variables including age, gender and psychological characteristics. From the limited relevant literature available, students’ performance is clearly related to their own concepts of their academic ability (Watson 1988 in mathematics). Watkins (1978-1986) and colleagues focussed on the effects of students’ personalities and attitudes, the nature of institutions and different faculties, disciplines and learning environments on student learning, study approaches and adjustment.

Students’ goals for tertiary study are an important factor in persistence, having either a direct or an indirect effect. The influence appears to vary. Students’ own goals appear to be influenced by their perceptions of their parents’ attitudes and goals for their tertiary education, and gender expectations and family background related to student withdrawal. Findings in the USA indicate that a students’ stated intention is a strong predictor, whether of persistence or dropping out (Astin 1993, Boddy and Neale, 1998). The 1997 HEFCE study found that one of the most significant factors in UK non-completions was lack of commitment to the course, particularly among students who applied to higher education because of parental and peer group pressure. In Australia, the academic orientation and motivation of students has been found to be a significant predictor of performance and persistence by West et al (1986), Abbott-Chapman et al (1992) and Warwick-James (1994).

(iii) Student Prior Performance

Admission to Australian tertiary institutions on the basis of academic performance is determined according to one index or some combination of indices, such as secondary school results or ranking (overall or in specific subjects), the score of some form of scholastic aptitude test, school recommendations, and other relevant experience or submitted folio of work. Research, in Australian and overseas, indicates that secondary school subject results are generally strong direct predictors of tertiary performance.


Some studies distinguished between performance in, and undertaking, subjects at school. Consistently, the predictive power was more obvious for the science disciplines and decreased in later years (Abbott-Chapman et al 1992, Auyeung and Sands 1993, McClelland and Kruger 1993). An early study by Downes (1976) found secondary school performance in economics and mathematics significant in explaining first year performance in all subjects in the Economics faculty at Monash, using data from both
the mid-60s and 1972, a result confirmed by Evans and Farley (1998) for the corresponding cohort in 1996 and 1997.

Various measures of scholastic aptitude directly predicted tertiary performance (Everett and Robins 1991, McClelland and Kruger 1993 (weakly)). Everett and Robins (1991) found the Australian Scholastic Aptitude Test (ASAT) quantitative test comparable to the total tertiary admission index in the University of Western Australia for both humanities and science students.

The rank of final tertiary offer accepted has been shown to directly influence performance (McClelland and Kruger 1993) and persistence (West et al. 1986) in Australia. Tertiary course choice has been explored by Kidd (1992) and Kidd and Naylor (1991).

(iv) Social Factors

West et al (1986) found family support to be an important factor in persistence for a small sample of waverers, though a few withdrew because of the difficulty of combining study with family commitments and needs, and that peer support and relationships directly enhanced students' persistence. In the UK a major factor in non-completion was that students were finding it difficult to cope living away from home (HEFCE, 1997).

In terms of study mode, McClelland and Kruger (1993) found no difference in the performance of part- and full-time enrolled students. Long’s (1994) results confirm previous findings that distance education students are more likely than on-campus students to withdraw, but that their academic achievement was comparable in later years although marginally lower in first year.

Withdrawers gave financial problems as the most important reason in West et al (1986), and third reason in Abbott-Chapman et al (1992). The National Board of Employment, Education and Training (NBEET) (1992) found that financial factors — living and course costs for school-leavers, and insufficient money or lack of student support for adults. — featured prominently as factors likely to frustrate applicants intention to undertake their chosen course (with only Year 12 score being perceived as more important). US research supports the view that the availability of financial aid in the form of long-term loans does not completely remove the deterrent effect of large tuition fees on low SES individuals — an effect which is seen in terms of access, choice and persistence in higher education (Astin et al 1980, Astin and Cross 1979, Carlson 1980, and Stampen 1983). The 1997 HEFCE study found financial hardship as one of the five main factors in non-completion in the UK.

(v) Institutional Factors

Pascarella et al (1986) found that persistence in the US was affected by person/environment fit (which had the most salient influence), measures of academic and social integration (which had the most direct effect), and student pre-college characteristics (which had the most indirect effect). Overseas research has found that ‘institutional commitment’ is a factor which influences persistence. Clarke et al (1994) suggest that, although the perceived goals or vision of the institution and student/institution fit appear important in some of the literature, on reflection these factors appear to represent a disparate combination of goals, which are addressed in other variables such as institutional commitment, personal and social orientation of the institution, perceived value of the course and course characteristics and faculty contact.

Academic integration, or out-of-class contact with academic staff, has been found to be a significant predictor of persistence in several U.S. studies such as Gillespie and Noble (1992) and Tinto (1993). West et al (1986) found 14% of withdrawers described teaching staff as uncaring or uninterested.

With regard to social integration, students’ perception that academic and administrative staff provide for their personal and social needs appears to positively influence persistence in U.S. studies and West et al. (1986). The literature on mentoring has been reviewed by Jacobi (1991), and Muckert et al (1996) and Goodlad (1998) quotes international accounts of student mentoring and tutoring.
The 1997 HEFCE study found that one of the five main factors in non-completion was incompatibility between the student and the institution — students often made the wrong choice, through insufficient information or had expectations which were not fulfilled.

A mismatch between prior expectations of tertiary courses and actual experiences was found to be a significant reason for withdrawing by Abbott-Chapman et al (1992). West et al (1986), and Power et al (1986) found that low commitment and withdrawal were often the result of inadequate counselling and decision making about university courses. Orientation courses generally improve retention, and in the U.S. Terenzini et al (1994) found that faculty involvement was important in orientation, and that there was a need for parents’ involvement. Other studies include Clark and Ramsay (1990).

A perceived lack of relevance was found to be a significant factor in dropping out in some Australian studies (Abbott-Chapman et al 1992, West et al 1986).

The nature of the course can affect persistence. Findings sometimes vary according to the discipline area, which can also relate to prerequisite knowledge. Success in science subjects has been found to be better predicted than in the humanities by the total ASAT test (Everett and Robins 1991) and by performance in relevant school subjects (McClelland and Kruger 1993). Shah and Burke (1996) found that students have the lowest chance of completing Engineering courses and the highest for Law once enrolled. The level of student satisfaction with the teaching and learning activities provided by the institution has been found to predict persistence by West et al (1986) (where withdrawers cited little encouragement or enthusiasm), and by Abbott-Chapman et al (1992).

### Institutional Actions and Planning

While some transition issues will be common to all institutions and groups within each transition cohort, some are specific to particular institutional environments and student groups. Transition issues therefore are ultimately best addressed within each institution and the most effective strategies are those which are mainstreamed within the teaching and learning environments and in the student support services. A broader analysis of the ‘first-year experience’ is required.

Tinto (1993), in his major monograph, wrote that “Knowing that attrition is greatest in first year does not, in itself, tell us what institutions can do during that year to enhance the likelihood of persistence and degree completion. For that we have to know about the different types of leaning which arise at the university and the forces which shape those learnings.”

Gillespie and Noble’s (1992) US study of 6000 students in five institutions supports Tinto’s view that persistence models are specific to individual institutions and the time period examined. They discuss the need to identify high-risk students and develop intervention strategies targeting key factors related to student retention. Other relevant literature includes Abbot-Chapman et al (1992), and Terenzini’s et al (1994) suggestions for transition in the US and the 1997 HECFC study and Yorke (1999) in the UK.


This review reveals that certain student groups can be identified as being likely to encounter transition problems, despite individual variation, and that these will vary according to the nature of the institution and its student body. Individual institutions will need to identify which factors are relevant to their students and to plan appropriate strategies.

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