Pathways theory of progression through higher education

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ABSTRACT

This paper is concerned with the pathways students take through their studies at university. A critique of current research demands a fresh approach to explaining student progression, in particular within Australian higher education. To date, theories of student progression commonly consider the fit of the person to the university environment within one rather homogeneous socio-cultural milieu. Socio-ecological approaches provide a new, more appropriate framework for investigating the progression of undergraduate students. Student pathways are conceptualised as a diverse series of choices within the discrete learning contexts of courses. In principle, student pathways and related behavioural outcomes are a function of student characteristics and the supports and constraints within each course. Understanding the differential impact of personal and social characteristics of students and their specific learning contexts contributes to an understanding of the choice behaviour of students as they negotiate common and distinct pathways through courses within the broader context of higher education. This paper presents an appropriate, useful and meaningful theoretical framework for understanding how students navigate the Australian higher education system.

Keywords: Australia, choice behaviour, higher education, learning context, longitudinal, pathways, progression, student outcomes, theoretical framework

This paper reports on the development of an inclusive theoretical framework for understanding student choice behaviours within Australian higher education systems. This framework forms a basis for institutional analysis and research. With much of the research into aspects of student progression in higher education, the theoretical basis is either un-stated or applied generally across the varied contexts of institutions. This is of particular concern given the diverse social and cultural contexts that characterise higher education systems and institutions internationally (Altbach, 1996; Welch, 2005).

The background characteristics and demographics of students, the enrolment choices each student makes as they move from one learning context to another over time and their performance outcomes, together present a complex combination of circumstances. The challenge is to

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conceptualise for each student the progression pathways taken over time. Pathways are conceptualised as sequences of student enrolment choices made each year - choices to continue a course, to transfer to another, to stop-out or to withdraw from a course.

In considering a theoretical perspective on student progression pathways through learning contexts, it is vital to consider the particular context. General models of student progression that relate to the university as a whole are neither practical nor appropriate in the Australian context. In Australia, students do not apply directly to a university but list preferences for specific courses across a range of places (Bornholt, Gientzotis, & Cooney, 2004; Hesketh, 1998). Each undergraduate degree course rather than each university campus is the appropriate unit of analysis.

A perspective on student progression

The university entails the courses, policies, teaching and learning approaches that inextricably encompass the diverse groups of students.

Who are these students? Students commencing a university course are quite diverse. Varying in their characteristics, demographics and family backgrounds, these students, both full-time and part-time, also vary in their background schooling, school outcomes, their post-school preferences for courses at university, and the range of university courses available to them (Bornholt et al., 2004; Department of Employment Education and Training, 1993; Parker et al., 1993). Once at university, students respond in varied ways to their university course, their surroundings and their university experience. Policies, demography, social structures and resources all have implications for the development and diversity of these students. Each student holds expectations concerning their course, as well as for their obligations and their commitment to it following initial enrolment (McInnis, James, & McNaught, 1995). In time, a student's expectations will have either been met or not met and their feelings about the surrounding university contexts and courses adjusted accordingly. If individuals perceive themselves as part of a community, in this case an educational and social community, this may influence decisions pertinent to remaining or leaving that community (Osterman, 2000). There will be aspects of university life including course assessment and academic policies which may have negative effects on the performance of some students and have positive effects on the performance of others. Some students may not feel intimidated by academic challenges such as competition, or continuous assessment, and may gain positively from such challenges while other students may be adversely affected by similar circumstances. Some students may feel marginalised or ill at ease with life at university while others may feel relaxed and involved and generally satisfied with their experience. In essence, diverse groups of students enter university, travel via diverse pathways through their studies, changing in diverse ways as they interact with other students and their learning context.

The university context... The university context is one of a number of social contexts students may experience at this time in their life. There is considerable variation and complexity among formal Australian university contexts. Universities differ in the variety of informal social networks and sub-cultures available to students, the services provided for students and their responsiveness to student demands and needs. The term 'university context', as used here, refers to this broader cultural experience provided by a university, an experience influenced by university policies, course requirements, standards and assessments, the values and expertise of staff and the students themselves. The university is considered here as a general cultural context, differentiated and distinct from the wider external community. It is seen as an integrated community that incorporates clusters of cultural groups that entail the faculties[1] and the more specific cultural contexts of degrees or courses.

The course context... The social and academic context of course environments vary both among universities and within each university (Department of Education Science and Training, 2001; Department of Employment Education and Training, 1996; Hativa & Marincovich, 1995;

University of Sydney, 2005; Vreeland & Bidwell, 1966). The cultural context of a course is reflected in academic experiences, social mix, student support services, course expectations and in the obligations that are associated with course participation. Course admission criteria, policies for course selection, modes of teaching, the staff, forms of assessment, the curricula as well as the other enrolled students, all form part of the cultural context of a course.

The context of a course is also assumed to vary across the stages of a course. A new commencing student, whether following straight from school or not, is entering a new culture, and adapting to a new setting, a new course and social life. This experience is likely to be different to the experience of re-enrolling in subsequent years of a course, each stage having different expectations, choices, and student groups. Each student responds in their own way to their surroundings, being part of the social context of other students, part of the culture of their course and the university. Their responses become part of the changing context of the course itself. This learning context has a quality beyond the characteristics of its students, although the characteristics of those within a learning context contribute to the distinctive character of the context itself.

An appropriate framework for explaining student progression needs to acknowledge the diversity of students and the differences in cultural contexts, together with the educational choices of these students as they move over time along a pathway towards completion.

A conceptual framework

A strong platform for developing an appropriate theoretical framework for investigating student progression is provided by a socio-ecological perspective, in particular, the co-constructionist perspectives of Valsiner and Lawrence (Lawrence, Benedikt, & Valsiner, 1992; Valsiner & Lawrence, 1997). Focusing on the interdependent relationship between the individual and their social context, psychological development is viewed as culturally guided and personally constructed (Lawrence & Valsiner, 1993; Valsiner, 2000). In principle, development takes place over time through continuing interactions between an individual and their surrounding social-cultural contexts. Both the individual and their cultural context are theorised to undergo change. Development is assumed to occur continuously as individuals constantly construct and re-construct their response to a constantly changing collective culture. From this perspective, individuals determine their own pathway through life by moving both within and between various social cultural contexts (Valsiner & Lawrence, 1997). Social contexts are seen both to influence and to provide opportunities by defining appropriate roles and tasks without categorically determining personal development. Valsiner's canalization conceptualises boundaries that present the individual with options of potential alternative branching paths representing further activities or roles within a social structure such as school. Personal development is therefore potentially multi-directional both within and among such social structures. Individuals, supported by their immediate surroundings, decide on their own individual life path, by changing directions to take particular paths through various social contexts. In a reciprocal fashion, a change in a person's life path is assumed to lead to changes within the social structures or the wider cultural contexts.

A socio-ecological system in balance

From this broad theoretical perspective, the university can be seen to encompass a heterogeneous culture within which particular courses can be viewed as separate contexts. The student makes a choice of course influenced by personal characteristics, such as those related to schooling, socio-economic factors and past experience, and enters the culture of the university. The students commence their course, one of the many integrated social contexts to which they belong, and progress by a series of educational decisions in negotiating a progression pathway

over time. The course places constraints but also provides opportunities for the student. Students are constrained and supported both explicitly in terms of course guidelines, teaching approaches, assessments and university regulations, and implicitly in terms of the pre-enrolment characteristics of the student such as background, school academic performance and their preference for the course of enrolment. Such choices may include re-enrolment in the same year or the next, transfer of enrolment to a different course, course completion, or temporary course stop-out or withdrawal. After yearly assessments for example, a student may choose to change direction in their progression path. Over time, enrolment choices by students may take them out of their courses, temporarily or permanently and into other contexts. Over and above actual performance, personal interpretations of events may lead to a range of possible choice behaviours. Some students may be motivated to make changes in direction, changes such as withdrawal, temporarily stopping out or transferring to another course. The cultural context of courses and the wider cultural context of the university itself are assumed to change over time partly in response to such student changes, thereby altering the mix of students and experiences for the next year.

Within these parameters set by the personal characteristics of students and by contextual constraints, student responses provide a counterbalance to reciprocal contextual responses. Progression and performance outcomes of students, themselves influence and are influenced by changes in the course and the wider university environment.

Each student is not only part of the context of their course but also part of other cultural groups and perhaps course contexts within the wider university as well as their home situation. Each student responds to these multiple contexts which in turn are assumed to change over time in response. In essence, progression through courses at university is conceptualised as a diverse series of choices in particular contexts. Personal and social characteristics of students are assumed to have impacts at various points along these progression pathways within a responsive higher education system.

Without choice options for students, all pathways through university would be similar. If contexts were inconsequential to these choices, progression pathways would be similar both across and within courses. Patterns of enrolment choices would be similar regardless of context. Similarly, if personal and social factors of students cannot be assumed to impact on choices differentially across courses, there would be no interaction between choices, context and personal characteristics. In such cases, diverse students would be making similar choices over time irrespective of context. If the relationship between student response and their studies were uni-directional, the consequence would be an unresponsive higher education system.

From a broad socio-ecological perspective, student progression is explained in terms of the choices a student makes over time as each finds a pathway through surrounding social contexts, a pathway that satisfies their expectations and their needs.

Progression and academic choice

Socio-ecological explanations of choice behaviour in the context of higher education provide a new approach. A review of research into theories relevant to progression through higher education indicates other theoretical approaches to explaining progression and performance vary in the emphases given to the importance of the individual, their social context and the interaction between both these in explaining progression. The wealth of research on educational choices in this field typically include individual/psychological approaches (Astin, 1993), socialisation theory (Attinasi, 1989; Cabrera, Nora, & Castaneda, 1993; Pascarella & Terenzini, 1980; Spady, 1971; Tinto, 1993; Weidman, 1989), rational choice theory (Beekhoven, De Jong, & Van Hout, 2002, 2003; Need & De Jong, 2001), and others (DesJardins, Ahlburg, & McCall, 1999; Mann, 2001; Tierney & Rhoads, 1985). These have generally focused on explanations of the *outcomes* of progression, such as annual performance, completion, retention and withdrawal.

Up to the 1970s, the theoretical frameworks typically were not expressly stated by researchers in modelling aspects of progression in higher education. At this point, Tinto's model of 'academic and social integration' became influential in the USA (Tinto, 1986, 1993). Retention is modelled as part of a longitudinal process whereby shared cultural norms, values and support, together with satisfactory academic performance, are theorised to increase a student's academic and social integration within the academic community. This in turn is theorised to increase student satisfaction and positively influence commitment to college or university and hence graduation. Student background characteristics and academic potential are assumed to have a direct effect on this process. Interaction between a student, their attributes and background characteristics, and other students and staff within the institution is postulated to influence retention as students find a compatible context with shared values, norms and behaviour (Tinto, 1993). With a match between themselves and their institution, the student is assumed to feel part of the community and less likely to leave. Student adjustment to the normative culture of the institutional environment is foremost in this approach.

With elements similar to the earlier work of Spady (Spady, 1971), the 'integration' model has been influential in the approaches of Bean, Cabrera, Pascarella, Terenzini and colleagues (Bean, 1980, 1982, 1983, 1985; Cabrera et al., 1993; Cabrera, Castaneda, Nora, & Hengstler, 1992; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983; Pascarella & Terenzini, 1980, 1991; Terenzini, Pascarella, Theophilides, & Lorang, 1985). Perspectives of both Tinto and Bean have been incorporated into a combined approach by a number of researchers (Braxton & Brier, 1989; Cabrera et al., 1993; Cabrera et al., 1992). Pascarella and Terenzini's approach to student learning, with a theoretical base in Tinto's social and academic integration model, has also been applied to student attrition (Nora, Cabrera, Hagedorn, & Pascarella, 1996; Pascarella et al., 1983; Pascarella & Terenzini, 1980; Terenzini et al., 1985). Pascarella's 1985 model places greater emphasis on the influence of an institution's structural and organisational characteristics than the model of Tinto (Pascarella & Terenzini, 1991). Characteristics such as institutional selection processes, size, residence arrangements, policies, student support and faculty culture, together with student background characteristics are assumed to shape the university environment. These factors, together with student effort and social interactions with other students, are assumed to shape and influence progress and retention. Individual characteristics are seen as possibly mediating the impact of the academic environment. The 'model of college impact' of Terenzini and colleagues (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996) is influenced by Astin (Astin, 1993), Tinto (Tinto, 1993) and Weidman (Weidman, 1989). Both this model and Pascarella's model of student learning postulate a reciprocal causation between students and their college experiences and outcomes, but leave the details of course differences in retention and other performance outcomes unexplained.

At the level of the university as a whole, Weidman (Weidman, 1989) also provides a conceptual framework for understanding undergraduate socialisation. Interpersonal relationships and the characteristics of students as well as the organisational characteristics of the institution itself are linked in a multi-directional causal manner. Weidman assumes the socialisation process is longitudinal and bi-directional in influence between the student and the institution. Attrition is considered less likely if the student is successful both socially and academically. Background characteristics, demographics and aspirations together with normative pressures from parents, peers and community shape and constrain student socialisation. As in the theoretical perspectives of Tinto, Pascarella and Terenzini, balancing normative influences, both academic and social, is central to these approaches.

With focus on integration and acceptance of the normative values and behaviours of institutions in the theoretical perspectives of Tinto, Bean, Cabrera, Pascarella and Weidman and colleagues (Cabrera et al., 1993; Pascarella & Terenzini, 1980; Tinto, 1993; Weidman, 1989), variations in retention are seen as a result of variations in integration. Maintenance of the system

is built upon student acceptance of the status quo rather than change and development in response to diversity in context.

Tinto's model and derivative models, such as those of Pascarella, Cabrera, Bean and colleagues (Bean, 1980, 1983; Cabrera et al., 1992; Pascarella & Chapman, 1983; Pascarella et al., 1983; Pascarella & Terenzini, 1980, 1991; Terenzini et al., 1985) are based on a higher education system different in many respects to that in Australia. Although positing a bi-directional process of interaction between students and the wider context, Tinto's approach underrates the importance of the responsiveness of the learning context to student input and outcomes. The need to focus on retention and the complexity of several pathways confronting students is overlooked.

These perspectives also tend to place the student more within a wider general academic and social context of the institution, rather than within more specific learning contexts of courses. With a focus on student retention or course withdrawal, other pathway options such as the return to studies by many students following a break are left unexplained. Variation in retention rates and performance between courses within the same institution are not easily explained from this perspective. The changing pathway patterns over time, the student's part in addressing these options, and contextual change in response to student change are unaddressed. On the whole, these perspectives are limited to viewing the student as maintaining an active role in a s*pecific* behaviour outcome within a *general* context rather than a series of progression choices over time from within specific course contexts.

Within the Australian higher education system, there are several features of higher education that warrant an ecological approach to models of student progression. Although a number of policy influences come from the UK and the USA, the system of higher education in Australia is distinct in many respects to other systems. Evidence of recent changes in European universities systems in response to the Bologna agreement and particularly to growth of universities in China (for example, Welch, 2005) and in reports of work among OECD countries (Bijleveld, c1994; Brennan & Shah, 2000; Moortgat, 1996; Organisation for Economic Cooperation and Development, 1998) highlight differences. In particular, Australian universities have a diverse student intake comparatively wide in age range, ethnicity and socio-economic background and with increasing numbers of part-time students (Department of Employment Education and Training, 1993).

Considering this diversity, the considerable amount of research into attrition from residential colleges in the USA with strong social systems, cannot be generalised to different systems of higher education. In Australia, apart from those students enrolled in distance education courses, it is likely that a large proportion of students visit university only to attend lectures (James & McInnis, 1997). A concept of integration has less relevance to the largely non-residential Australian system. Within the diverse and integrated context of Australian higher education institutions, it is also difficult to see how students with differing cultural backgrounds and values can become integrated into one 'dominant' culture represented by a general model which assumes similarities in cultural terms between the learning contexts of faculties and courses.

Institutional characteristics beyond the specific aspects of particular courses are not strong influences in the choice of university for tertiary applicants in Australia (James, Baldwin, & McInnis, 1999). With students applying to specific courses rather than directly to a university, it would seem unlikely that Australian students would have a special bond with their university to the same degree as research on their American counterparts would suggest. There are also important distinctions between systems in the proportion of students entering university directly from school. In Australia, a significant proportion of commencing undergraduate students do *not* come direct from school (Department of Education Science and Training, 2001, 44% of local students in 2000). Issues such as these highlight the relevance of context to an appropriate theoretical perspective.

Student perspectives and progression

Other research examines the motivations for choices and behaviour. Studies of major contribution include theories of planned behaviour, including expectancy value models, which consider students' perspectives on choices (Ajzen & Madden, 1986; Eagly & Chaiken, 1993; Wigfield & Eccles, 2000). Other studies consider student thought from a rational action theoretical perspective to explain educational choices and academic progress (Beekhoven et al., 2002; Need & De Jong, 2001). Beekhoven et al. considered the students' interpretation of surrounding events as they assessed their likelihood of success. Student experiences, plus personal, social and financial factors, were theorised to affect their assessment of their likelihood of future success and their choice to remain or not within the course. Although the student is viewed as active in decision making, the learning context itself is not viewed as part of an interdependent process of mutually responsive change. In further research, Beekhoven et al. (Beekhoven et al., 2003) report contextual differences after controlling for individual factors. However individual pathways were not mapped in and out of learning contexts.

Viewing the student as active in decision making also underlies the event history modelling approach of DesJardins et al. (1999) and DesJardins, Ahlburg and McCall (2002). Although DesJardins et al. investigate the possibility of differential effects of explanatory variables over time, contextual effects have not been included in the model. Their modelling approach makes a positive contribution to the field, although falls short of explaining the personal and social factors involved in these processes and outcomes. Sociological approaches of Mann (Mann, 2001) and of Tierney and Rhoads (Tierney & Rhoads, 1985), while looking at individuals within their social context do not contribute to understanding *individual* student progress over time. Attinasi (Attinasi, 1989, 1992) assumes the decision to remain at university is not only academic but one related to the socially relevance of university for the student. However, Attinasi has not presented a detailed alternative theoretical model at the individual level. Johnson (Johnson, 1994) and Johnson and Buck (Johnson & Buck, 1995) in Canada investigate the consequences of integration for student performance and include within this approach the psychological states of a student such as satisfaction or stress. Again, this approach does not focus on the effects of the immediate course context in explaining differences in progression choices within the same institution.

Context and progression

There are few longitudinal studies investigating sequences of student behaviour within learning contexts. An important addition to the body of theory relating to progression is the model of undergraduate non-completion of Ozga and Sukhnandan (Ozga & Sukhnandan, 1998; as cited in Yorke, 1999). Modelled from higher education data in the UK, this approach acknowledges the importance of different contextual factors, and views non-completion as the end-point of a *process* of progression along differing pathways over time. Although limited to undergraduate non-completion, this model begins to unravel the complex longitudinal process of student-contextual interaction. Characteristics such as student preparedness, course choice and compatibility with the institutional context are modelled as important factors for completion.

A new theory…

A great deal of past research has given insights into theory. However, despite the considerable research attention focused on *outcomes* of progression, in particular on retention and attrition, there is little on theoretical perspectives relevant to the *longitudinal process* of student progression through higher education.

An appropriate theoretical perspective needs to accommodate cultural variations in systems of higher education. Such variations are evident from research across a number of countries (Ardila, 2001; Beekhoven et al., 2003; Finocchietti, 1995; Jallade, 1992; Moortgat, 1996; Niit, 2001; Nurm & Aunola, 2001; Ransdell, 2001; Smith & Naylor, 2001). In Australian, despite the variety of studies, theoretical emphases and cultural variation within different national contexts, little has been added to the general body of theory (Abbott-Chapman, Hughes, & Wyld, 1992; Andrich & Mercer, 1997; Department of Education and Science/Australian Vice-Chancellors' Committee, 1971; Dobson, Sharma, & Haydon, 1997, 1998; Lewis, 1994; Linke et al., 1991; Martin, Maclachlan, & Karmel, 2001; McClelland & Kruger, 1993; Power, Robertson, & Baker, 1987; Urban et al., 1999; West, Hore, Bennie, Browne, & Kermond, 1986).

Research concerning progression has been undertaken both within the general learning context of an institution as well as the more specific and immediate learning context of subjects or courses. However, much of the research resides at the general institutional level (Baumgart & Johnstone, 1977; Bean, 1980; Department of Education Science and Training, 2001; Harvey-Beavis & Robinson, 2000; Munro, 1981; Pascarella & Chapman, 1983; Pascarella & Terenzini, 1979; Pike, Kuh, & Gonyea, 2003; Terenzini & Pascarella, 1977; Toutkoushian & Smart, 2001). A number of studies have investigated differences across combinations of courses. However, by combining the more immediate contexts of courses into 'fields of study' or 'disciplines', changes in responses to the immediate course contexts and details of progression within courses are hidden (Dobson & Sharma, 1993; Ozga & Sukhnandan, 1998; Price, Harte, & Cole, 1992; Shah & Burke, 1999; Urban et al., 1999). Much of the research focuses on the relationship between outcomes of performance, retention or completion and student characteristics, while the process of progression over time within contexts has been overlooked.

Despite the vast amount of research attention paid to student behaviour outcomes in higher education, to the range of institutional settings and to student characteristics and demographics, combining these dimensions demands a new theoretical framework relevant to Australian higher education for explaining pathways of progression. An appropriate theoretical perspective would acknowledge the diversity of today's student population as well as change and responsiveness of both the student and their learning context over a substantial period of time. An appropriate approach would incorporate a *longitudinal perspective* on the academic *choices* students make as they negotiate a pathway through the multiplicity of *learning contexts* within a larger university context. The impact of the *personal characteristics* of students at points along this sequence of pathway choices, also needs to be considered. A broad socio-ecological approach provides a backdrop for a new theoretical perspective relevant to the Australian system.

The Pathways Theory

Pathways of progression are a function of student enrolment choices made over time from within a learning context. Following course entry and the various yearly course assessments, each student chooses to re-enrol or to withdraw, to stop-out or to transfer enrolment to other courses. This means that there are many pathways rather than just one ideal pathway through a course in terms of the student enrolment and years to completion. Both the individual student and the learning context itself can be considered part of the mechanism giving shape and direction to these future choices. Each specific learning context incorporates aspects of a specific course such as curriculum content, teaching styles, assessment, the location of the course, as well as the background characteristics of the students enrolled in the course. Each learning context is expected to change over time with the changes in both these aspects. The learning contexts are modelled as a function of the characteristics of both course and students:

context={course characteristics x student characteristics/demographics}

Individual pathways of progression through undergraduate courses are considered as a function of four underlying theoretical components - the course itself, the characteristics and demographics of the students within this learning context, ongoing student enrolment choices and the passage of time following from course entry. Student progression is hypothesised as the end product of interactions between these four underlying components:

progression pathway=choice x time x course x student characteristics

Evidence of this four-way interaction would support a Pathways Theory. A contextual theory of pathways considers student characteristics in relation to the choices that students make over time in particular course contexts. The evidence to support this theory would show *variations* among course contexts in terms of pathways through their university courses. Outcome indicators of performance, retention and completion are seen as indexes of student choices over time. The evidence would also need to show that student background characteristics and demographics are linked with the choices that students make at different times in each of the course contexts.

Documenting pathways

Data documenting longitudinal progression needs to be in a form which facilitates statistical analysis at the student level rather than aggregate data at the course or institutional level. Much research considers the institution, the academic unit (faculty or school) or discipline as the level of analysis and is limited to a short-time period and often reports outcomes in terms of cross-sectional, aggregate data (Johnes, 1990; Johnes & Taylor, 1989). Although this focus can provide information for the administration and organisation of courses and institutions, valuable information on *progression* is lost or fragmented. Analysis at the individual level can capture detailed information on the progression and related outcomes of individual students as they move through their courses. A method introduced by Robinson (2004) enables the identification and documentation of all the longitudinal pathways of progression through university courses over time. Using this method, higher education population data can be examined to test the Pathways Theory of student progression.

Conclusion

Pathways Theory provides a starting point for a new theoretical framework for research into understanding student progression and the underlying components of choice, context, personal characteristics and time. Although previous research has considered the diversity among institutions worldwide and also among institutions nationally, this approach takes the context to the course level. What are these pathways students choose to take following course entry? What is the relationship between student background characteristics, their pathway choices and their learning contexts over time? What background characteristics of students entering courses are associated with subsequent student outcomes of performance, completion and retention?

The theoretical perspective can be adapted to courses within systems of higher education, to other times in history (using secondary data) and to institutions in other cultures. Is it applicable to other times in more specific situations with fewer choice options, such as before and after the introduction of fees? Does this approach reveal a greater or lesser degree of interaction between the underlying components in such situations? What are the constraints and opportunities in making progression choices over time? Documenting pathway patterns of enrolment choices over time presents an opportunity for systematically addressing vital issues in higher education.

With increasing flexibility in opportunities for university study, we need to think clearly about what it means to be a student working towards a degree. What does it mean for diverse students at different places and different stages within the diversified and changing sector

globally, within changing boundaries of disciplines, within traditional and virtual learning environments? This theoretical perspective would provide a framework relevant to higher education and offer a model of pathways of progression through undergraduate courses with practical value, in particular for Australian higher education.

Endnotes
[1] In Australia, the faculty as a unit of operation has a central place within the academic process. Each faculty is responsible for a range of distinct courses. Faculty responsibilities include selection and quotas for courses, admission and transfer of students, units of study and the organisation of the teaching and assessment of courses. The terms *course* and *degree* are used synonymously here.

REFERENCES

Abbott-Chapman, J., Hughes, P.& Wyld, C. (1992). *Monitoring student progress: A framework for improving student performance and reducing attrition in higher education*. Hobart, Australia: Youth Education Studies Centre, University of Tasmania.

Ajzen, I.& Madden, T.J. (1986). Prediction of goal directed behaviour: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*, 453-474.

Altbach, P.G. (1996). *The International Academic Profession. Portraits of Fourteen Countries*. Princeton: The Carnegie Foundation for the Advancement of Teaching.

Andrich, D.& Mercer, A. (1997). *International perspectives on selection methods of entry into higher education*. Canberra, Australia: National Board of Employment, Training and Education.

Ardila, A. (2001). Predictors of university academic performance in Colombia. *International Journal of Educational Research, 35*, 411-417.

Astin, A.W. (1993). *Assessment for excellence*. Phoenix, AZ: Oryx Press.

Attinasi, L.C. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications for freshman year persistence. *Journal of Higher Education, 60*, 247-277.

Attinasi, L.C. (1992). Rethinking the study of the outcomes of college attendance. *Journal of College Student Development, 33*, 61-70.

Baumgart, N.& Johnstone, J. (1977). Attrition at an Australian university: A case study. *Journal of Higher Education, 48*, 553-570.

Bean, J.P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education, 12*, 155-187.

Bean, J.P. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. In E. Pascarella (Ed.), *New directions for institutional research: Studying student attrition* (Vol. 36, pp. 17-33). San Francisco: Jossey-Bass.

Bean, J.P. (1983). The application of a model of turnover in work organizations to the student attrition process. *The Review of Higher Education, 6*, 129-148.

Bean, J.P. (1985). Interaction effects based on class level in an explanatory model of college student dropout syndrome. *American Educational Research Journal, 22*, 35-64.

Beekhoven, S., De Jong, U.& Van Hout, H. (2002). Explaining academic progress via combining concepts of integration theory and rational choice theory. *Research in Higher Education, 43*, 577-600.

Beekhoven, S., De Jong, U.& Van Hout, H. (2003). Different courses, different students, same results? An examination of differences in study progress of students in different courses. *Higher Education, 46*, 37-59.

Bijleveld, R. (c1994). Comparing completion rates in higher education: An analysis of systems' characteristics. In L. Goedegegebuure & F. Van Vught (Eds.), *Comparative policy studies in higher education* (pp. 273-298). Utrecht, The Netherlands: Lemma.

Bornholt, L.J., Gientzotis, J.& Cooney, G. (2004). Understanding choice behaviours: Pathways from school to university with changing aspirations and opportunities. *Social Psychology of Education, 7*, 211-228.

Braxton, J.M.& Brier, E.M. (1989). Melding organizational and interactional theories of student attrition: A path analytic study. *Review of Higher Education, 13*, 47-61.

Brennan, J.& Shah, T. (2000). Quality assessment and institutional change: Experiences from 14 countries. *Higher Education, 40*, 331-349.

Cabrera, A., Nora, A.& Castaneda, M.B. (1993). College persistence: Structural equations modelling test of an integrated model of student retention. *Journal of Higher Education, 64*, 125-139.

Cabrera, A.F., Castaneda, M.B., Nora, A.& Hengstler, D. (1992). The convergence between two theories of college persistence. *Journal of Higher Education, 63*, 143-164.

Department of Education and Science/Australian Vice-Chancellors' Committee. (1971). *The 1961 study: An analysis of the progress of new bachelor degree entrants to Australian universities in 1961*. Canberra, Australia: Australian Government Publishing Service.

Department of Education Science and Training. (2001). *Characteristics and performance of higher education institutions 2000* (No. 6797HERC02A). Canberra, Australia: Author.

Department of Employment Education and Training. (1993). *National report on Australia's higher education sector*. Canberra, Australia: Australian Government Publishing Service.

Department of Employment Education and Training. (1996). *Diversity in Australian higher education institutions, 1994* (No. 26). Canberra, Australia: Author.

DesJardins, S.L., Ahlburg, D.A.& McCall, B.P. (1999). An event history model of student departure. *Economics of Education Review, 18*, 375-390.

Dobson, I.R.& Sharma, R. (1993). Student progress: A study of the experience in Victorian tertiary institutions. *Journal of Tertiary Education Administration, 15*, 203-211.

Dobson, I.R., Sharma, R.& Haydon, A. (1997). *Commencing undergraduates in Australian universities: Enrolment and performance trends 1993-1995. Survey of applicants for undergraduate higher education courses* (No. ACN 008 502 930). Canberra, Australia: Australian Vice Chancellors' Committee.

Dobson, I.R., Sharma, R.& Haydon, A. (1998). *Undergraduates in Australian universities: Enrolment trends and performance of commencing students 1993-1996*. Canberra, Australia: Australian Vice-Chancellors' Committee.

Eagly, A.H.& Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth,TX: Harcourt Brace Jovanovich.

Finocchietti, G. (1995). *Student dropout in European higher education*. Strasbourg, France: Council of Europe.

Harvey-Beavis, A.& Robinson, L. (2000). *Views and influences: Tertiary education, secondary students and their advisors* (No. 6470HERC00A). Canberra, Australia: Australian Council for Educational Research.

Hativa, N.& Marincovich, M. (Eds.). (1995). *Disciplinary differences in teaching and learning: Implications for practice* (Vol. 64). San Francisco: Jossey-Bass.

Hesketh, B. (1998). Careers advice and tertiary decision-making 'downunder' in Australia. *Journal of Vocational Behaviour, 52*, 396-408.

Jallade, J. (1992). Undergraduate higher education in Europe: Towards a comparative perspective. *European Journal of Education, 27*, 121-144.

James, R., Baldwin, G.& McInnis, C. (1999). *Which university? Factors influencing the choices of prospective undergraduates*. Retrieved November 11, 2004, from http://www.dest.gov.au/archive/highered/eippubs/99-3/whichuni.pdf

James, R.& McInnis, C. (1997). The residential arrangements of first year students in Australia: Student accommodation and adjustment to university. *Journal of the Freshman Year Experience, 9*, 33-52.

Johnes, J. (1990). Determinants of student wastage in higher education. *Studies in Higher Education, 15*, 87-99.

Johnes, J.& Taylor, J. (1989). Undergraduate non-completion rates: Differences between UK universities. *Higher Education, 18*, 209-225.

Johnson, G.M. (1994). Undergraduate student attrition: A comparison of the characteristics of students who withdraw and students who persist. *The Alberta Journal of Educational Research, 40*, 337-353.

Johnson, G.M.& Buck, G.H. (1995). Students' personal and academic attributions of university withdrawal. *The Canadian Journal of Higher Education, 25*, 53-77.

Lawrence, J.A., Benedikt, R.& Valsiner, J. (1992). Homeless in the mind: A case-history of personal life in and out of a close orthodox community. *Journal of Social Distress and the Homeless, 1*, 157-176.

Lawrence, J.A.& Valsiner, J. (1993). Conceptual roots of internalization: From transmission to transformation. *Human Development, 36*, 150-167.

Lewis, D.E. (1994). *The performance at university of equity groups and students admitted via alternative modes of entry*. Canberra, Australia: Australian Government Publishing Service.

Linke, R.D., Bourke, P.F., Chubb, I.W., Mackay, L.D., Martin, L.M., McKellar, B.H.J.et al. (1991). *Performance indicators in higher education: Report of a trial evaluation study commissioned by the Commonwealth Department of Employment Education and Training (Vol 1 Report and recommendations)*. Canberra, Australia: Australian Government Publishing Service.

Mann, S.J. (2001). Alternative perspectives on the student experience: Alienation and engagement. *Studies in Higher Education, 26*, 7-19.

Martin, Y.M., Maclachlan, M.& Karmel, T. (2001, Dec). *Undergraduate completion rates: An update*. Retrieved January 30, 2002, from http://www.dest.gov.au/highered/occpaper/01f/default.htm

McClelland, A.A.& Kruger, P.W. (1993). *An investigation of the subsequent performance in tertiary studies of students admitted through the Queensland Tertiary Admissions Centre in 1989-90*. Canberra, Australia: Department of Employment Education and Training.

McInnis, C., James, R.& McNaught, C. (1995). *First year on campus. Diversity in the initial experiences of Australian undergraduates*. Canberra, Australia: Australian Government Publishing Service.

Moortgat, J.-L. (1996). *Quality. Equality: A study of dropout in European higher education. Case studies of five countries* (No. M01/18110). Brussels, Belgium: Council of Europe.

Munro, B.H. (1981). Dropouts from higher education: Path analysis of a national sample. *American Educational Research Journal, 18*, 133-141.

Need, A.& De Jong, U. (2001). Educational differentials in The Netherlands. Testing rational action theory. *Rationality and Society, 13*, 71–98.

Niit, T. (2001). Academic performance and its prediction: A view from Estonia. *International Journal of Educational Research, 35*, 397–401.

Nora, A., Cabrera, A., Hagedorn, L.S.& Pascarella, E. (1996). Differential impacts of academic and social experiences on college-related behavioral outcomes across different ethnic and gender groups at four-year institutions. *Research in Higher Education, 37*, 427-451.

Nurm, J.-E.& Aunola, K. (2001). How does academic achievement come about: Cross-cultural and methodological notes. *International Journal of Educational Research, 35*, 403 –409.

Organisation for Economic Cooperation and Development. (1998). *Education at a glance. OECD indicators: Key comparisons and trends*. Paris: Author.

Osterman, K.F. (2000). Students' need for belonging in the school community. *Review of Educational Research, 70*, 323-367.

Ozga, J.& Sukhnandan, L. (1998). Undergraduate non-completion: Developing an explanatory model. *Higher Education Quarterly, 52*, 316-333.

Parker, P.M., Bornholt, L.J., Cooney, G.H., Harman, K., Ball, S.& Scott, C.L. (1993). *Going on to university. A study of offers made through the NSW Universities Admission Centre, 1991*. Canberra, Australia: Department of Employment Education and Training.

Pascarella, E.T.& Chapman, D.W. (1983). A multi-institutional, path analytic validation of Tinto's model of college withdrawal. *American Educational Research Journal, 20*, 87-102.

Pascarella, E.T., Duby, P.B.& Iverson, B.K. (1983). A test and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. *Sociology of Education, 56*, 88-100.

Pascarella, E.T.& Terenzini, P.T. (1979). Interaction effects in Spady's and Tinto's conceptual models of college dropout. *Sociology of Education, 52*, 197-210.

Pascarella, E.T.& Terenzini, P.T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education, 51*, 60-75.

Pascarella, E.T.& Terenzini, P.T. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey-Bass.

Pike, G.R., Kuh, G.D.& Gonyea, R.M. (2003). The relationship between institutional mission and students' involvement and educational outcomes. *Research in Higher Education, 44*, 241-261.

Power, C., Robertson, F.& Baker, M. (1987). *Success in higher education*. Canberra, Australia: Australian Government Publishing Service.

Price, D., Harte, J.& Cole, M. (1992). *Student progression in higher education: A study of attrition at Northern Territory University* (No. 92/181). Canberra, Australia: Department of Education Training and Youth Affairs.

Ransdell, S. (2001). Predicting college success: The importance of ability and non-cognitive variables. *International Journal of Educational Research, 35*, 357 –364.

Robinson, R.A. (2004). Pathways to completion: Patterns of progression through a university degree.*Higher Education, 47,*1-20.

Shah, C.& Burke, G. (1999). An undergraduate student flow model: Australian higher education. *Higher Education, 37*, 359-375.

Smith, J.P.& Naylor, R.A. (2001). Dropping out of university: A statistical analysis of the probability of withdrawal for UK university students. *Journal of the Royal Statistical Society. Series A, 164*, 389-405.

Spady, W.G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange, 2*, 38-62.

Terenzini, P.& Pascarella, E. (1977). Voluntary freshman attrition and patterns of social and academic integration in a university. *Research in Higher Education, 6*, 25-43.

Terenzini, P.T., Pascarella, E.T., Theophilides, C.& Lorang, W.G. (1985). A replication of a path analytic validation of Tinto's theory of college student attrition. *Review of Higher Education, 8*, 319-340.

Terenzini, P.T., Springer, L., Yaeger, P.M., Pascarella, E.T.& Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*, 1-22.

Tierney, W.G.& Rhoads, R.A. (1985). Postmodernism and critical theory in higher education: Implications for research and practice. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 9, pp. 308-343). New York: Agathon Press.

Tinto, V. (1986). Theories of student departure revisited. In J. C. Smart (Ed.), *Higher education: Handbook of theory and research* (Vol. 2). New York: Agathon Press.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.): University of Chicago Press.

Toutkoushian, R.K.& Smart, J.C. (2001). Do institutional characteristics affect student gains from college? *The Review of Higher Education, 25*, 39-61.

University of Sydney. (2005). *Statistics 2005*. Sydney: University of Sydney.

Urban, M., Jones, E., Smith, G., Evans, C., Maclachlan, M.& Karmel, T. (1999). *Completions: Undergraduate academic outcomes for 1992 commencing students* (No. 99-G). Canberra, Australia: Department of Education Training and Youth Affairs.

Valsiner, J. (2000). *Culture and human development. An introduction*. London: Sage.

Valsiner, J.& Lawrence, J.A. (1997). Human development in culture across the life span. In J. W. Berry, P. R. Dasen & T. S. Saraswathi (Eds.), *Handbook of cross-cultural psychology* (2nd ed., Vol. 2, pp. 69-106). Boston: Allyn and Bacon.

Vreeland, R.& Bidwell, C.E. (1966). Classifying university departments: An approach to the analysis of their effects upon undergraduates' values and attitudes. *Sociology of Education, 39*, 237-254.

Weidman, J.C. (1989). The world of higher education: A socialization-theoretical perspective. In K. Hurrelmann & U. Engel (Eds.), *Social world of adolescents: International perspectives*. New York: de Gruyter.

Welch, A.R. (Ed.). (2005). *The professoriate. Profile of a profession*. Dordrecht, The Netherlands: Springer.

West, L.H.T., Hore, T., Bennie, C.N., Browne, P.A.& Kermond, B.M. (1986). *Students withdrawing from full-time higher education*. Melbourne, Australia: Monash University.

Wigfield, A.& Eccles, J.S. (2000). Expectancy value theory of achievement motivation. *Contemporary Educational Psychology, 25*, 65-82.

Yorke, M. (1999). *Leaving early: Undergraduate non-completion in higher education*. London: Falmer Press.