

What changes in the transition to learning at university?

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Abstract

This paper reviews evidence about factors affecting student transitions to learning at university. We first review theoretical models of student transitions, and consider their different emphases and end-points. We then examine evidence about academic factors (eg approaches to learning and beliefs about knowledge), social factors (eg engagement and integration) and pedagogic factors (eg teaching methods) as potential influences on student learning transitions. We then attempt a synthesis of the findings and theory, and propose a transitions model in which quality of learning is the key central factor.

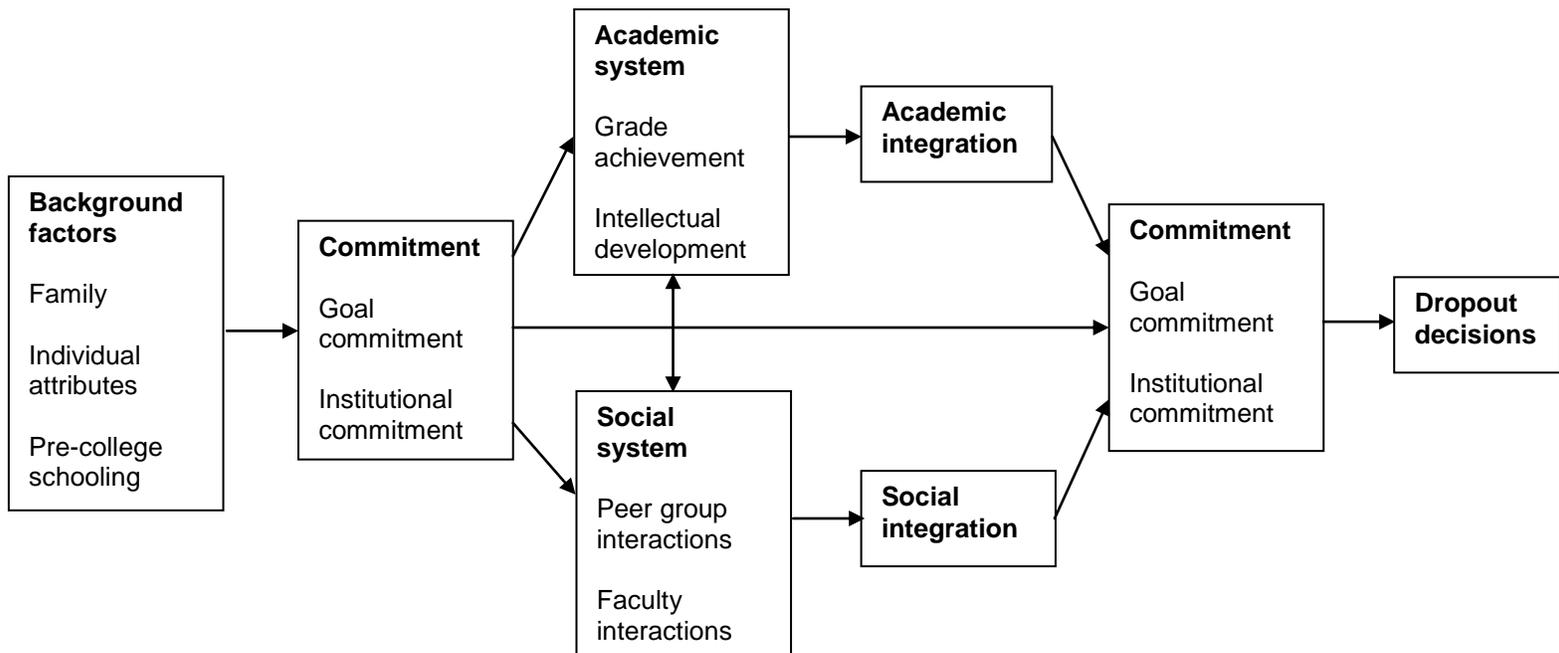
Introduction

Many students in UK universities do not feel sufficiently prepared for degree level study, and university tutors feel similarly that students are lacking in academic skills. Not all students experience significant problems on entering higher education, but with more students going to university from a greater range of backgrounds than ever before, the numbers who experience difficulties or require support are increasing, and problematic transitions can impact significantly on student engagement, retention, achievement and satisfaction.

Transition models

Models of educational transitions are typically complex and almost always combine both academic and social factors. An example of a transition model is the classic model of student withdrawal by Tinto (1975, 1987), which describes processes leading to student withdrawal from higher education (fig 1). Tinto's model was influenced by Durkheim's sociological analyses of suicide, and explains student withdrawal as a failure of student integration with the institution. In this model, background characteristics such as personal history and academic ability influence students' levels of commitment to their goals and institution. This affects a number of academic and social factors, leading to different levels of academic and social integration. Students' commitments are then re-evaluated, leading to decisions about whether to drop out or persist with study.

Fig 1. A conceptual model of dropout from college (adapted from Tinto, 1975)



Tinto's model has been extremely influential, but has not been fully tested empirically, partly because the elements of the model are not precisely specified, so they have been defined and measured in different ways by researchers who have focused mainly on examining relationships among variables in different parts of the model, rather than testing the model as a whole. In one of the few tests of the model as a whole, in which all the elements were operationalised and measured, path analysis was used to test the overall fit between the model and the statistical relationships among the measured elements. The resulting fit indices showed that the model was not an adequate explanation for the data (Brunsdon et al, 2000).

The first question to ask about transition models concerns the end point: what constitutes a successful transition? In Tinto's model, the end point is decisions about withdrawal, so a successful transition is defined as persistence, or failing to withdraw from study, sometimes operationalised as re-enrolment for the next semester. The key positive process in the transition model – integration – is not well specified and is treated as an influence on the process rather than a goal in itself. This makes it look in many ways like a 'deficit' model, focusing on a negative outcome, with successful outcomes defined by the absence of withdrawal.

Persistence, or failing to withdraw, is certainly important, especially in the first year at university, which is a critical period for many students (McInnis, 2001; Oldham, 1988), but failing to withdraw is arguably the minimum requirement for a successful transition, which must involve more than just continuing to attend. One analysis of over 40 factors that could affect student retention led the authors to argue that focusing on retention and completion risks 'mistaking the symptom for the cause', and that institutions should attempt to improve students' learning experiences and bring students' interest and experience to the fore (York & Longdon, 2004).

Other transition models have focused specifically on positive aspects of successful transition, such as engagement. Purnell and Foster described a stage model

of transition in which students progress from 'preparation' to 'encounter', 'adjustment' and finally 'stabilisation', which is defined by engagement, belonging and academic competence. They also described a model of engagement in which 'engaged' students are those who share the values and approaches to learning of their lecturers, spend sufficient time and energy on educationally-meaningful tasks, learn with others inside and outside the classroom, actively and confidently explore ideas with other people, and learn to value perspectives other than their own (Purnell & Foster, 2008).

So what end point should constitute a successful transition to university? Surely the end point should be academic in nature, however that is defined, for universities are essentially places of learning. A successful transition to university should be defined in terms of learning, and factors like student withdrawal and retention, as well as progression, achievement and graduation, should be treated as consequences of the transition rather than as part of the definition of a transition. In fact, Mantz Yorke has argued that we should not regard non-completion of a whole degree programme as failure, but as a reflection of the fact that students may dip in and out of education (Yorke, 2003).

In our theorising about transitions to university, we have therefore focused on the transition to *learning* at university. The key characteristics of university learning have been defined in different ways, including self-directed learning (Brookfield, 1985), self-regulated learning (Zimmerman & Schunk, 2001), or meta-learning (learning to learn and learning how to learn (Biggs, 1985; Meyer & Norton, 2004).

There is an important social dimension to those types of learning that is at the forefront of the problem-based learning movement (Hmelo-Silver, 2004), which stresses the social construction of knowledge (Burr, 2003) and knowledge building (Scardamalia & Bereiter, 2006). Social factors are especially important in the transition to university learning because it takes place during the first period of a student's stay at a large, unfamiliar institution, with a new peer group, and different teaching methods from those experienced previously. However, we argue that social factors should be regarded as influences on the transition process rather than as end points in the transition or definitions of what constitutes a successful transition.

What definitions should be used to characterise the type of learning that would represent a successful transition to university learning? One candidate set of criteria is Bloom's taxonomy, which is a classification of learning outcomes designed originally to help standardise and exchange test materials, but which became extremely influential as a framework for planning education and evaluating student learning (Bloom et al, 1954; Krathwohl, 2002; Kretchmar, 2008). The taxonomy is a progressive hierarchy, beginning with knowledge (remembering), and developing through comprehension, application, analysis, synthesis and evaluation (fig 2).

Another set of candidate criteria are given in Biggs & Collis' (1982) SOLO (Structure of Observed Learning Outcomes) taxonomy, which is a hierarchical description of five levels of students' understanding in higher education, and which can be used in both curriculum design and assessment (fig 3).

Fig 2. Bloom's Taxonomy of Educational Objectives

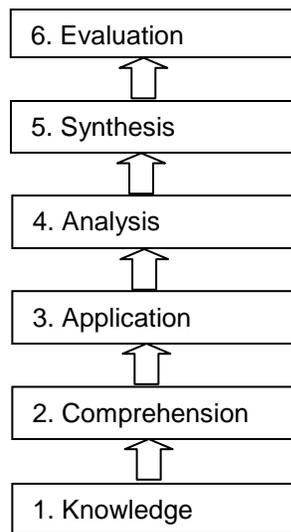
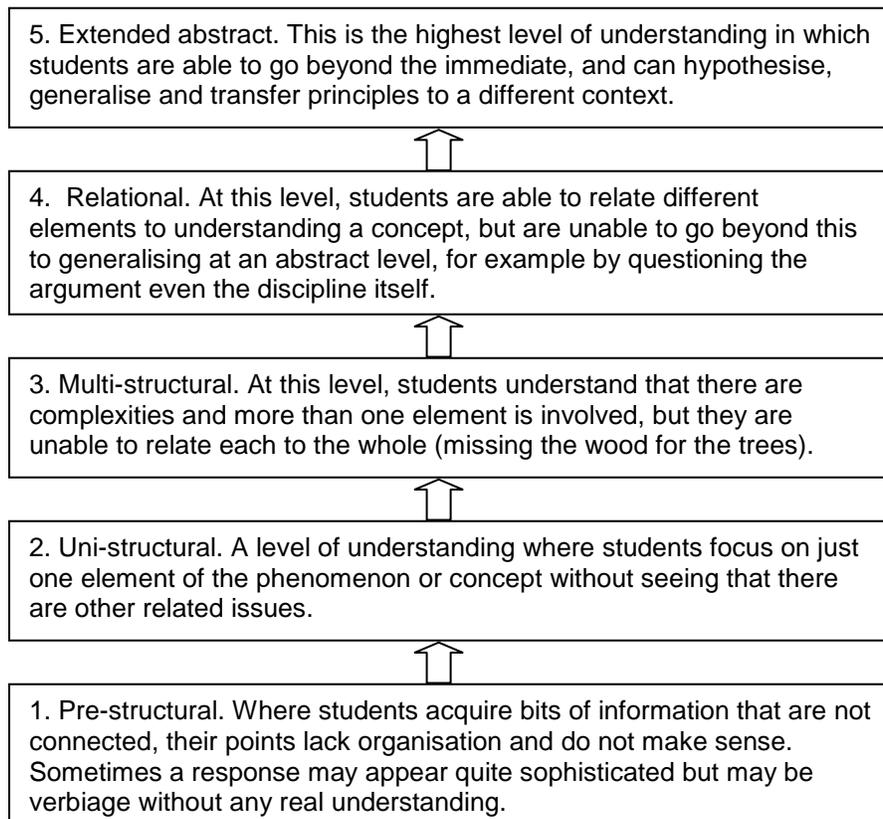


Fig 3. Biggs & Collis' (1982) SOLO taxonomy



Progression in either Bloom's or the SOLO taxonomies would increase the likelihood that a student will pass their assessments, stay at university, and achieve a qualification. Perhaps surprisingly, there is little research evidence to our knowledge on the application of these taxonomies to educational transitions, but both have intuitive appeal as descriptions of the expected changes in students' learning as they make the transition from school or further education to university or higher education. A successful transition could arguably be formalised as progression from comprehension to application and analysis (Bloom's taxonomy), or as progression to written work that evidences increasingly relational and abstract understanding (SOLO taxonomy).

Evidence about influences on the transition to university

In this section we look at some of the evidence and arguments about three broad classes of potential influences on transitions to university. The first of these is academic-related student characteristics, such as approaches to learning and beliefs about knowledge. The second is social and non-academic factors, such as peer support and levels of social engagement with student peers and the institution. The third is pedagogic factors, including teaching methods and styles.

Academic-related student characteristics

Academic-related student characteristics include approaches to learning and beliefs about knowledge, and factors like those are often the targets of interventions aiming to smooth the transition by accelerating students' learning development. The focus on approaches to learning is not surprising, considering the previous discussion of Bloom's taxonomy and the SOLO taxonomy, for analysis, synthesis and evaluation, and relational and abstract understanding, almost by definition require deeper approaches to learning. Reducing surface approaches to learning and increasing deeper approaches to learning could therefore be regarded as key factors in successful transitions to university learning.

However, the concept of learning styles, or approaches to learning, is hotly contested in the literature (eg Curry, 1990), and many of the findings about how approaches to learning actually change in the transition to university are not what might be expected. For example, one survey found that many study habits and attitudes developed at school persisted into the first year at university, despite staff expectations about independent learning and the reality of reduced study support (Cook & Leckey, 1999). Also, students' approaches to learning may be highly dependent on their perceptions of the learning context, and reflect the ways students are taught and assessed (see later section on teaching methods and pedagogic practice).

The evidence is rather clearer about the role played by students' beliefs about knowledge ('epistemological beliefs'), which can range from 'naïve' (for example, believing that knowledge consists of an accumulation of discrete facts that originate in external authority) to 'sophisticated' (for example, believing that knowledge consists of evolving, inter-related concepts that are constructed by the learner in interaction with others, and are justified by enquiry and evaluation) (Hofer & Pintrick, 1997).

Epistemological beliefs are quite closely related to approaches to learning. Adopting a surface approach to learning is not a surprising choice for a student with naive epistemological beliefs, and in one study, surface approaches to learning were associated with beliefs that knowledge is certain and comes from authority, and that the ability to learn is innate, whereas deeper approaches were predicted by beliefs that

learning requires effort and that knowledge is self-determined, originating within the self (Chan, 2003).

Many students enter university with apparently rather naïve epistemological beliefs, especially in relation to science subjects. For example, Roth and Roychoudhury (1994) found many school science students believed that knowledge is based on facts, and comes from textbooks and other sources, and Hammer (1994) found that students about to enter higher education believed that knowledge in science was a collection of separate facts and could only be understood by experts.

Epistemological beliefs could be a useful basis for explaining the transition from school to university study. Kember (2001) proposed that students with more naïve epistemological beliefs would find their initial experiences in higher education unsettling and even traumatic, and that developing more sophisticated epistemological beliefs would facilitate more successful transitions. Hofer & Pintrick (1997) suggested that students entering higher education could experience anxiety at being asked to engage in tasks that require greater epistemological sophistication, causing them to search for safety in more familiar types of learning that involved even more basic levels of epistemology.

Epistemological beliefs appear to develop spontaneously with age and/or education. Cano (2005) found that school children's epistemological beliefs were already changing from naïve to more sophisticated before the completion of their school level studies. There is also some evidence that certain forms of instruction are associated with changes in students' epistemological beliefs (Gil et al, 2004), but more research is needed on interventions designed specifically to alter epistemological beliefs.

The evidence about the role played by approaches to learning in the transition to university learning is therefore rather weak, but there is a stronger case for epistemological beliefs as influences on transitional learning, with indications that interventions to promote more sophisticated epistemological beliefs would be worthwhile to support students' transitions.

Social factors

Entering university usually involves a number of social changes that must be negotiated alongside transitions in learning, and the links between social and learning transitions are very strong. For example, greater student contact with peers and tutors was associated with learning gains, including among those who persisted in higher education (Endo & Harpel, 1982). Some researchers have argued that developing social ties is critical to successful transitions (Wilcox et al., 2005), and social engagement and integration have a central position in many transition models. A number of studies have found that greater interaction with other students and with the institution is associated with staying on the course (Mallette & Cabrera, 1991; Tinto, 1998), and some researchers emphasise the concept of belongingness in students' learner identities (Solomon, 2007). Studies of transitions from the student perspective, typically involving interviews with first year students, often emphasise non-academic aspects of the transition, such as feeling homesick, making new friends, and other positive and negative social aspects of adjusting to life at university (Palmer et al., 2009).

Social factors probably do not influence students uniformly, however. For some students, going to university presents a number of urgent social challenges that must be resolved before progress can be made with learning-related aspects of the transition, so in some cases social transitions could be regarded as an initial hurdle or precondition for other aspects of the transition. For others, like mature students and distance learning students, *avoiding* social disruption and upheaval as they enter university may be more important than adjusting to social changes.

Social factors are probably most important for younger students leaving home to attend university after studying at school, and the social challenges of the transition are probably most salient during the very first weeks at university. One study of Mexican-American students suggested that they experienced a need to attach themselves to relevant social groups as a way of coping with the demands of university, and suggested that achieving social attachment and social support may have been a precondition for subsequent involvement in higher education (Attinasi, 1989). Another study reported that as students progressed from the first to subsequent years of study at university, their persistence (continuing to enroll for courses) was increasingly shaped by educational rather than social concerns (Neumann & Neumann, 1989).

Thomas argued that students' networks of friends and social contacts are part of the 'social capital' needed to overcome social exclusion at university, and that three things universities can provide to promote social networks for students are communal living arrangements, social facilities, and collaborative learning and teaching strategies (Thomas, 2002). Many interventions aiming to improve student transitions have a social element, as attempts to improve teaching methods are combined with measures to improve students' peer interaction. For example, Tinto (1997) reported a 'coordinated study programme' designed to meet both academic and social needs by focusing on unifying themes across disciplines and involving students and tutors in cooperative learning exercises. Participation in the programme was associated with greater 'persistence' (re-enrolment the following semester), independently of factors such as grade point average, hours of study per week, or perceptions of other students. Tinto argued that combining social and academic involvement in shared learning experiences encourages students to link themselves as learners with their peers, making it more likely they will invest time and effort in learning, and that the social affiliations provided by the shared learning experiences act as a vehicle to increased academic engagement.

Teaching methods and pedagogic practice

Teaching practices are important in the transition to university because they differ so much between pre-university and university education, mainly in ways that reflect the expectation that students at university will adopt a deeper approach to learning. A comparative study of teaching methods found that in the teaching of A-levels (the most prevalent UK pre-university qualification), there was greater reliance on tutor-provided content, less expectation of autonomous study, and only limited critical analytic skills development, whereas university students were expected to be more autonomous and were encouraged to develop more general analytical skills for assessment (Ballinger, 2003).

Surveys of first year university students often show that they feel the ways they were taught pre-university did not prepare them to learn at university (eg Smith, 2004). In one large scale survey of first year university students' reasons for deciding not to continue with their studies, many students commented on large-scale lectures that allow little interaction with either staff or with fellow students, and 'false' expectations about what studying at university would actually be like (Yorke & Longden, 2007).

Intervention programmes have therefore attempted to improve students' study skills and approaches to learning early in the transition to university, but these have typically had mixed results. For example, participation in a general study skills programme delivered just prior to entry to university was associated with improved student retention and achievement (Knox, 2005), and in one analysis, institutions that provided preparatory programmes for students before they enrolled achieved greater widening participation and student retention than those that did not (Yorke & Thomas, 2003). However, a learning skills intervention for first year university students that aimed

specifically to increase deep approaches and reduce surface approaches to learning actually resulted in increased surface approaches (Ramsden et al, 1986).

One reason for disappointing results of interventions to promote deeper approaches to learning may be that students' approaches to learning are probably far more dependent on how they are taught and assessed in their subject than they are on the quality of learning interventions delivered separately from subject teaching. For example, students who are assessed using closed-book examinations that can be passed by memorising information may reluctantly but understandably adopt a surface approach to learning despite appreciating the value of deeper approaches (Scouller, 1998).

One example of the complexity of attempting to accelerate university students' learning development comes from Liverpool Hope University, where one-third of the first year curriculum was given over to a generic programme of study skills, critical thinking, academic writing, personal development and learning how to learn. However, both students and tutors found the programme too generic and too separated from the learning of specific subjects. A modified version with partial integration of the study skills element into the subject curriculum met with some limited success (Gayton et al, 2005; Norton et al, 2004), but the programme was ultimately disbanded in favour of full integration of learning development initiatives into the first year subject curriculum.

A successful transition to university also involves learning to produce written assignments to meet different and more challenging assessment criteria, yet in one sample nearly half of first year university students reported difficulties with writing essays, and in another, 78% did not know what markers were looking for in their essays (Pain & Mowl, 1996). Many university students are prone to misconceptions about what counts when their assignments are assessed (Norton, 1990; Norton et al, 1996), and there are substantial mismatches between staff and student understandings of the meanings of assessment criteria (Harrington et al, 2006a; Williams, 2005).

A number of interventions have therefore focused on improving university students' understandings of the criteria applied to written assignments. Usually provided for first year students, these take the form of interactive workshops involving marking exercises (eg Bloxham & West, 2004; Rust et al., 2003). The results generally showed positive evaluations and some trials demonstrated improvements in student understanding and achievement. However, although the studies often focused on first year university students, they have not generally examined the impact in terms of transitions.

Some of those initiatives (Harrington et al, 2006b; Norton et al, 2005) focused on seven core assessment criteria for university written assignments: addressing the question, demonstrating understanding, critical evaluation, developing arguments, structuring, using evidence, and using academic language (Elander et al, 2004). Those seven criteria are frequently applied to students' written work at university across disciplines and institutions. Meeting them involves learning in terms of understanding, application and analysis rather than just remembering knowledge, so it is no surprise that they are associated with complex skills and deep approaches to learning (Elander et al, 2006).

Could pre-university students be helped to understand those 'core criteria' before they arrive at university, and would that help students to make a more successful transition to learning at university? Part of the answer to the first part of this question was provided recently by a study that evaluated a core criteria workshop intervention for A-level and Access students at a further education (FE) college. The results were modest but encouraging. Prior to the intervention, the FE students had overstated their understanding of the assessment criteria and their ability to meet them, and the

workshops reduced the FE students' self-rated understanding and ability while increasing the sophistication of their beliefs about essay writing (Jessen & Elander, 2009).

Interventions that take place while students are still studying pre-university will need to find the right balance between maximizing students' chances of making a successful transition to university while minimizing any disruption to pre-university learning. Arguably it is appropriate that pre-university learning is mainly focused on knowledge and remembering content, with little expectation of analysis, synthesis or evaluation, for pre-university learning of 'facts' and content probably provides a platform for deeper learning at university.

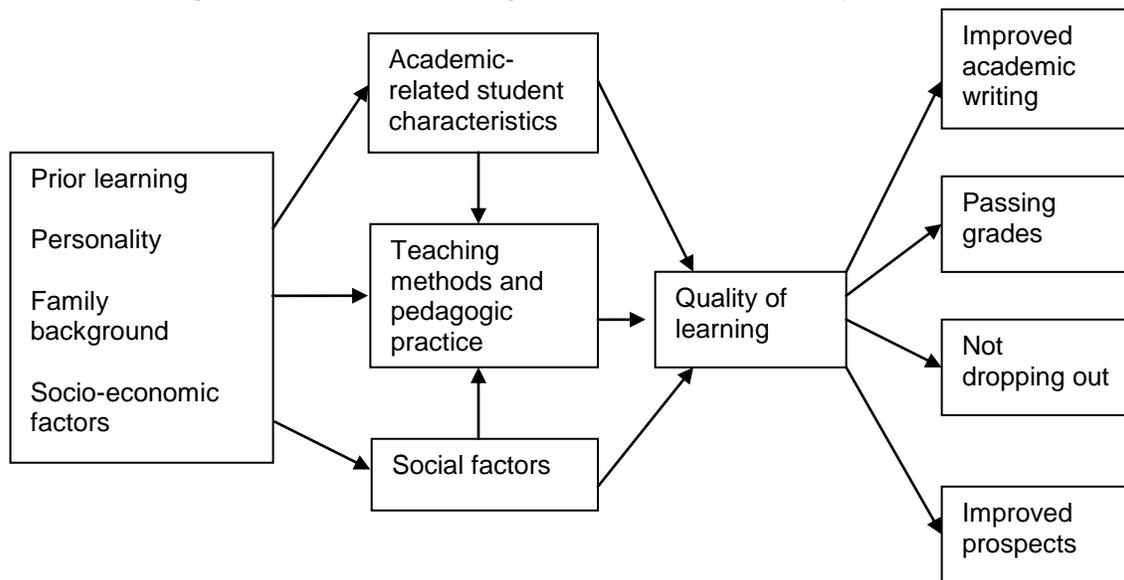
Informal aspects of pedagogy may also have an important influence on student transitions. Focus groups with students suggested that factors like things calling staff by their first names, being able to get hold of staff, staff knowing students' names, showing signs of friendship, showing interest in their work, treating students as equals, and acts of kindness when students need help, were things that had a big impact on students' self-confidence and motivation, and their perceptions of how respected and accepted they felt. If students felt respected by staff they should be more likely to be able to bring problems to them, and should be more likely to get academic difficulties resolved that could otherwise lead to failure (Thomas, 2002).

Certain informal aspects of pedagogy could reinforce social inequalities in the transition to university by disadvantaging students from backgrounds without a family or class history of participation in higher education, which is important in the context of transition models that emphasise the degree of fit between student and institution (eg Berger & Braxton, 1998). Thomas argued that 'the language of instruction, the assumed knowledge and the prioritizing of style over contents favour students from a dominant background, rather than those for whom HE is not the norm' (Thomas, 2002, p. 433). So a culture in which students feel respected by staff may be one of the preconditions for disadvantaged students to engage productively in learning, which is perhaps not surprising considering that other researchers have argued that staff attitudes and behaviours play an important in promoting student involvement and engagement (Bryson & Hand, 2007; Wills, 1993).

Conclusions

We have argued that a successful transition to university should be defined in terms of quality of learning, and that student withdrawal or retention, as well as progression, achievement and graduation, should be treated as consequences of the transition rather than the definition of whether the transition has been successful. Social factors are important elements, but need not constitute successful transitions in themselves. Rather, social engagement and integration appear to be necessary preconditions for learning development, especially for certain groups of students. Academic-related student characteristics like approaches to learning, and both formal and informal pedagogic factors can also be regarded as influences on learning development, so that a model like that described in fig 4 could help to capture the influences on the learning development that constitutes a successful transition to university.

Fig 4. A model of learning transitions at university



This model puts learning at the heart of the process, and considers the complex and interacting factors that are sometimes treated as part of the transition itself, or as part of learning itself, as influences on that. It could be applied to distance-learning and online students as well as campus students. It is not a model of social adjustment at university, but a model of learning in educational transitions. It is not intended to specify the precise processes leading to successful or unsuccessful learning transitions in every case, but to guide thinking about the factors that influence transitions to the types of learning that are most likely to be successful in university education.

This analysis of factors influencing the transition to university learning helps to identify areas where existing findings could be translated into practice and those where further work is needed. For example, more sophisticated beliefs about knowledge seem to be associated with more successful transitions to university learning, and there is some evidence that pre-university students' understanding of university assessment can be improved, but there is no clear evidence of improved student transitions resulting from specific learning development initiatives. More work probably needs to be done on ways to help students adopt deeper approaches to learning and more sophisticated beliefs about knowledge in the very early stages of the transition to university, as well as on how to improve both formal and informal aspects of pedagogy to support students in the transition to university learning.

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