Chapters 5, 6 and 7 were concerned with the SPQ and the ASI. Both of these instruments were originally devised to measure approaches to learning among students who were taking courses at campus-based institutions of higher education. The obvious research question in both these cases is whether or not it is valid and appropriate to employ the same instruments in exploring approaches to studying in distance education. In fact, with both questionnaires, the answer seems to be in the affirmative, although research with distance-learning students has tended to confirm fundamental problems with the design and construction of these instruments that had previously been identified in research with campus-based students. In contrast, in this chapter and the next, I shall discuss two other instruments that were specifically intended from the outset to measure approaches to learning in students who were taking courses by distance education.

The first of these instruments, the Distance Education Student Progress (DESP) inventory, was devised by Kember et al. (1991) in the light of the findings of Kember and Harper (1987b) with regard to the relationships between students’ scores on the various subscales of the ASI and different measures of academic outcome. It will be remembered from Chapter 6 that the precise nature of these relationships depended: (a) upon the relevant measure of academic outcome (completing a course versus obtaining a credit or better); and (b) upon the mode of course delivery (internal versus external, or campus-based versus distance education). The latter aspect of these findings indicates that adopting particular approaches to studying has different implications for academic attainment in campus-based and distance education. This, in turn, is potentially important if one wishes to maximize student attainment within either system of education and especially if one wishes to maximize student retention.
Student retention in campus-based education

Course completion or student persistence (as opposed to attrition, withdrawal or ‘drop-out’) has always been a concern for researchers, administrators and policy makers in higher education. Tinto (1982) presented figures that suggested that course completion at institutions of higher education in the US (defined as the proportion of students who completed bachelor’s degrees on schedule 4 years after their initial enrolment) had consistently been around 55 per cent over the period from 1880 to 1980. Some of the students in the remaining 45 per cent may have taken longer to obtain their degrees or they might have transferred to other institutions of higher education. However, Tinto subsequently claimed that there was a substantial residual number of students who withdrew for academic or nonacademic reasons and would never obtain a degree:

Of the nearly 2.8 million students who in 1986 will be entering higher education for the first time, over 1.6 million will leave their first institution without receiving a degree. Of those, approximately 1.2 million will leave higher education altogether without ever completing a degree program.

(Tinto 1987: 1)

A theoretical analysis of student attrition was provided by Spady (1970, 1971), who referred to Durkheim’s ([1897] 1952) account of suicide. Durkheim had argued that people were disposed towards suicide when two kinds of integration were lacking: value or moral integration, which was based upon sharing similar values and beliefs with the community; and collective or social integration, which was based upon social interactions and the formation of personal affiliations. Spady suggested that the predicament of students deciding whether to continue their studies or to withdraw was broadly analogous to the situation of the individual contemplating suicide. He elaborated this into a detailed descriptive account of the various factors influencing a student’s decision either to persist with their studies or to withdraw. Spady (1971) presented results from 683 students at a campus-based university in the US that supported his account.

Tinto (1975) built upon Spady’s account in attempting to develop a predictive model of student retention. He argued that it was necessary to distinguish between a student’s integration into the academic structure of an institution of higher education and their integration into its social life. Tinto proposed that the first kind of integration would be reflected in the congruency between the students’ expectations and the norms and practices of their institutions, whereas the second kind of integration would be reflected in the quality of the social interactions with their teachers and with other students (Figure 8.1). In a later account, Tinto (1987: chapter 4) suggested that a critical factor determining the quality of a students’ academic and social integration was how they negotiated the transition from
Figure 8.1  Tinto’s (1975) conceptual schema for drop-out from college

secondary education to higher education. Here, he borrowed from the ideas of the anthropologist, van Gennep ([1908] 1960), concerning the 'rites of passage' that regulated people's access and admission to different social communities.

Clearly, there are important processes at work in the transition to higher education – and not just for students who come directly from secondary education but for adult returners as well. There is limited empirical support for Tinto's analysis, at least in the case of campus-based education (for instance, Christie and Dinham 1991), and it has been used to study other kinds of outcome, such as students' self-reports and personal development (Pascarella and Terenzini 1991: 51–3). However, other researchers have criticized Tinto's use of anthropological analogies as inappropriate (see, for example, Tierney 1992). In the present context, the main problem with his account is that it is based upon a very narrow and traditional view of the 'typical' student. Indeed, Tinto (1982: 693) acknowledged that his primary goal was to account for variations in attrition across a particular type of institution: 4-year residential institutions where membership of a specific community was an essential element of an individual's educational experience.

In elaborating this point, Tinto suggested that the notions of academic or social integration were much less relevant in the case of urban colleges, where most students did not live in the vicinity of the institution itself. In fact, this suggestion was not borne out by subsequent research on the experience of students at such 'commuting colleges', and this led Tinto to amend his proposal:

But it does not follow... that social contact with other persons on campus may not be important to persistence of students in two-year and nonresidential colleges... Quite the contrary, there are reasons to suspect that social and intellectual contact beyond the classroom may be as important, if not more important, to persistence in commuting colleges as it is in residential ones... But it may apply less for the average student than for those who are marginal with regard to college completion.

(Tinto 1987: 75)

Tinto's original suggestion ignores the fact that students can create their own social networks and it ignores the social relationships and interactions that students have outside the institution with their families and friends. Bean and Metzner (1985) suggested that the latter relationships were particularly important in the case of students who were 'non-traditional' (in other words, students who were older, who lived outside the institution or who studied on a part-time basis), and they put forward an alternative model of student attrition to accommodate these additional factors. Tinto himself agreed that, in this context, social systems outside educational institutions (such as students' families, peer groups or local communities) could have a substantial impact upon their decisions whether to persist with their
studies or to withdraw (Tinto 1987: 108, 124). This is of obvious relevance for understanding the situation of students in distance education.

Student retention in distance education

It is sometimes claimed that retention and completion rates in distance education are low, both in absolute terms and when compared with those of campus-based courses. (The figures quoted above with regard to course completion in the US between 1880 and 1980 obviously should be borne in mind when evaluating such claims.) One problem is that accounts of student retention in distance education have focused on the completion of individual course units rather than entire degree programmes (see Bernard and Amundsen 1989). It would appear that many students who take individual course units by distance learning are not expecting to complete a degree or, at least, are not expecting to complete a degree by distance learning. For instance, von Prümmern (1990) found that nearly a quarter of all students taking courses by distance learning in the former West Germany had enrolled in order to test whether they were capable of studying at a campus-based university. This motive was endorsed by an even higher proportion of those students who subsequently discontinued distance education. Other students stated that they had discontinued their studies because they had achieved their personal goals without proceeding to a degree. It is therefore not clear whether ‘non-completion’ means the same thing in the context of distance education or, indeed, whether it is necessarily undesirable (see Coldewey 1982).

Woodley and Parlett (1983) analysed student retention in distance education at the level of the individual course unit. For one single year at the Open University in the UK they found that the withdrawal rate was 24 per cent of all students who had completed their course registration. In their analyses, they combined cases of student drop-out with those of academic failure into an overall ‘wastage rate’, of which student withdrawal accounted for nearly 80 per cent. Woodley and Parlett quoted figures from other institutions in Europe and North America that indicated that the wastage rate in distance education varied between 20 and 70 per cent. Within the Open University, some variation in wastage rate could be ascribed to characteristics of the students taking different courses: in particular, their lack of prior experience of studying with the Open University and the number of courses that they were currently taking. Additional variation in wastage rate could be attributed to characteristics of the courses themselves: here, the age of a course, its academic level and the involvement of a mathematics component in the syllabus were positively associated with the wastage rate, whereas the credit value of the course and the inclusion of a residential school were negatively associated with the wastage rate.

In the late 1970s and 1980s, a number of attempts were made to apply Tinto’s (1975) model of student retention and attrition to the context of
distance learning, with only limited success. Sweet (1986) found that measures of academic and social integration, combined with students' demographic characteristics, were statistically significant predictors of whether students would successfully complete their coursework assignments and examination at a Canadian institution. A much larger study by Taylor et al. (1986) encompassed students who were taking courses at distance-learning institutions in five different countries. This attempted to build upon an earlier finding by Rekkedal ([1973] 1984) that reducing the time to return marked assignments could lead to a marked improvement in the course completion rate. Unfortunately, there was no consistent relationship across the five institutions between course completion and any of the variables that were used to try to predict student persistence, including the time to return marked assignments. However, Bernard and Amundsen (1989) criticized this investigation because it did not reflect the major dimensions of Tinto's model and did not include the full range of relevant variables. Bernard and Amundsen themselves examined course completion in three courses delivered by distance education in Canada; they found that all the components in the model were important in predicting course completion but that their relative importance varied from course to course.

In these studies, researchers attempted to explain attrition in terms of students' stated reasons for dropping out, basic demographic data and information about the courses and institutions in question. With hindsight, the main limitation of these studies is that they made little attempt to explore the actual nature and experience of learning in distance education (see Cookson 1989). Indeed, Tinto (1987: 211) made a similar criticism of research into student retention at two-year and non-residential colleges in the US. (Two-year colleges are institutions whose programmes last for two years and are usually intended for high-school graduates in the immediate locality. On satisfactory completion of these programmes, students may receive the qualification of associate of arts or associate of science and may then transfer to some other institution to undertake the final two years of a bachelor's degree.) Nevertheless, several studies conducted during the 1980s repeatedly confirmed that course completion in distance education depended less on academic factors than on non-academic ones, such as students' intentions, goals and approaches to learning and personal support from teachers, counsellors and family members (for example, Rekkedal 1983; Gatz 1986; Siqueira de Freitas and Lynch 1986; Billings 1987).

The DESP inventory

Kember (1989b) argued that it was necessary to build on the accounts devised by Spady (1970), Tinto (1975, 1987) and Bean and Metzner (1985) to produce a model of student retention that was linked to the distinctive context of distance education (Figure 8.2). In this situation, he proposed
that 'academic integration' encompassed all of the different facets of course delivery and that 'social integration' depended upon the extent to which students were able to reconcile the demands of their course with the continuing commitments of their work, their families and their social lives (compare this with Hezel and Dirr 1990; see also Kember 1995: 50). Kember went on to refer to the results obtained by Kember and Harper (1987b) regarding the prognostic value of scores on the ASI in internal and external students (see Chapter 6). He argued that, for distance-learning students, adopting a deep approach or a surface approach to studying would be a potential determinant of academic integration, whereas intrinsic motivation and extrinsic motivation represented different aspects of goal commitment which would in turn have consequences for both their academic integration and their social integration.

Initially, Kember (1989a) supported his model by reference to illustrative quotations taken from published case studies of students taking courses by distance learning in the UK (Kennedy and Powell 1976) and Papua New Guinea (Kember 1981), as well as an unpublished case study of distance-learning students in Tasmania. This led him to derive a number of recommendations for ways in which distance-learning institutions might try to reduce attrition (Kember 1990; see also Kember 1995: chapters 13–15). In particular, the roles of support staff could include:

- building collective affiliation through the use of tutoring programmes
- helping students to reorientate their conceptions of knowledge and adapt to the demands and conventions of higher education
- enhancing collective affiliation by helping students with administrative problems
- counselling students on how to integrate their study demands with their work, family and social commitments.
Further support came from the findings of interview-based investigations in Australia (Roberts et al. 1991) and Hong Kong (Kember et al. 1990, 1992; see also Kember 1995: chapters 6–10).

Nevertheless, in the light of these findings some key changes were made to the original model and a revised version was presented by Kember (1995) (Figure 8.3). This was based around the two key dimensions of academic integration and social integration. Students who have the appropriate entry characteristics and achieve satisfactory social and academic integration would normally be expected to achieve satisfactory performance in the form of a grade point average or some other measure of attainment. This is represented in the upper (that is, positive) track in Figure 8.3. However, students who fail to achieve satisfactory social integration tend to blame competing work, family and social pressures: that is, they make external attributions for their predicament. Equally, students who fail to achieve satisfactory academic integration tend to be insufficiently integrated into the academic structure of their institution: that is, they demonstrate academic incompatibility. Students who lack the appropriate entry characteristics or who fail to achieve satisfactory social and academic integration would not be expected to achieve satisfactory performance. This is represented in the lower (that is, negative) track in Figure 8.3.

Within this account, the dimensions of goal commitment (intrinsic and extrinsic motivation) are subsumed under the constructs of academic integration and incompatibility. Moreover, there is an explicit assumption that students make the decision either to proceed with their studies or to withdraw in the light of their actual performance in academic assessments. Among other things, this means that the model can be tested not only against measures of persistence or attrition but also against measures of performance such as grade point averages. In other words, it is not just an account of student drop-out but also a model of student progress. Finally, there is a recycling loop to reflect the fact that students continuously re-appraise their situation in the light of their changing academic and personal
circumstances. (In principle, this could also be a feedback loop in which a
decision to persist or withdraw had consequences for students' entry char-
acteristics, but this was apparently not considered by Kember.) To test this
account against data from large numbers of students it was necessary to
develop a quantitative instrument that could be used to measure the various
constructs in the model. This was the purpose of the DESP inventory.

In its final version, the DESP inventory consisted of 68 items in 16 subscales
(Box 8.1); these were published as an appendix to the book by Kember
(1995: 233–6). The subscales were subsumed within four higher-order scales:
'social integration', 'external attribution', 'academic integration' and 'aca-
demic incompatibility'. (The 'potential drop-out' subscale is included within
both the external attribution scale and the academic incompatibility scale:

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**Box 8.1 Subscales contained in the Distance Education Student Progress inventory**

**Social integration**
- Enrolment encouragement (4 items)
- Study encouragement (4 items)
- Family support (3 items)

**External attribution**
- Insufficient time (4 items)
- Events hinder study (3 items)
- Distractions (7 items)
- Potential drop-out (3 items)

**Academic integration**
- Deep approach (4 items)
- Intrinsic motivation (4 items)
- Positive course evaluation (5 items)
- Positive telephone counselling (4 items)
- Reading habit (3 items)

**Academic incompatibility**
- Surface approach (6 items)
- Extrinsic motivation (4 items)
- Negative course evaluation (6 items)
- Potential drop-out (3 items)
- English ability (4 items)

*Source: Kember 1995: 232–6*
Kember 1995: 138.) As in the ASI, respondents are asked to indicate for each item the extent of their agreement or disagreement with a statement along a five-point scale between 'definitely agree', scoring 4, and 'definitely disagree', scoring 0. Once again, the middle category on this scale was 'only to be used if the item does not apply to you or if you find it impossible to give a definite answer' (Kember 1995: 231). For four items, these responses have to be coded in reverse; however, the remaining 64 items all reflect the meanings of the corresponding scales. Finally, the coded responses are summed to obtain a score on each subscale and the scores on the relevant subscales are then summed again to obtain a score on each scale.

Four of the 16 subscales were adapted from the 64-item version of the ASI with changes in wording to make them suitable for use in a distance-learning context: the subscales relating to deep approach and intrinsic motivation contributed to the measurement of academic integration, and the subscales relating to surface approach and extrinsic motivation contributed to the measurement of its converse, academic incompatibility. The instrument was developed and validated with large numbers of distance-learning students at several institutions in Hong Kong (for whom it was translated into Chinese, as English was their second language). The subscales exhibited satisfactory levels of internal consistency and factor analyses carried out on the subscale scores confirmed the existence of the four main scales. Moreover, the DESP inventory achieved a fairly high degree of success in predicting both the students' current grade point average and the proportion of courses that students had failed to complete (Kember et al. 1991, 1992, 1994; see also Kember 1995: chapters 5, 11 and 12).

Further research using the DESP inventory in distance education

Joughin et al. (1992) administered a version of the DESP inventory to 1843 students who were taking distance-learning courses with an Australian university. They focused on the responses given to the 18 items in the four subscales that had been taken from the ASI. They conducted a factor analysis of these responses and extracted four factors. Although these broadly corresponded to the four subscales that had originally been defined by Entwistle and Ramsden (1983: see Box 6.1, p. 90), there were some discrepancies. In particular, one item from the subscale relating to a surface approach, 'When I am reading I try to memorize important facts which may come in useful later', showed a significant loading on the 'deep approach' factor. This led Joughin et al. to argue that even Australian students might combine memorizing and understanding, an approach to studying previously found only among students in China and Hong Kong (see Chapter 2). Moreover, one item from the subscale relating to a deep approach, 'I often find myself questioning things that I hear in lectures or read in books', did not generate a significant loading on the factor in question.
Joughin et al. raised the idea that distance education failed to promote a critical or questioning attitude on the part of students.

Potentially, this should be a matter of some concern to distance educators. A subsequent study by Anderson and Garrison (1995), which used an *ad hoc* questionnaire, identified two different models of instructional design in the delivery of distance-learning courses by teleconferencing. In one model, the teleconference sessions were employed to support discussion and interaction among the students in a 'community of learners'. In the other model, the sessions were simply employed as 'independent learner support' to monitor the progress of individual students and ensure that they were satisfying the institutional demands for passing their courses. Anderson and Garrison suggested that the first model was far more likely to foster critical thinking skills than the second model. This is consistent with the idea that approaches to studying depend on the context of learning, in so far as for all students (but especially for those studying by distance learning) the 'context' of learning encompasses the educational technology available to support their learning and how it is used in practice (Brown 1982; Moore 1989; Hezel and Dirr 1990).

Nevertheless, there are two basic reasons for questioning the validity of the inference drawn by Joughin et al. The first has to do with the phrasing of the relevant item. According to their own account, Joughin et al. used the original wording of the item, 'I often find myself questioning things that I hear in lectures or read in books', as used by Entwistle and Ramsden (1983: 228). The inclusion of a reference to 'lectures' in this item might have led students taking courses by distance learning to respond that the item simply did not apply to them. This would have led to a reduction in the amount of variance to be explained on this item and this, in turn, would have reduced its loading on any of the factors obtained in the factor analysis. In contrast, Kember et al. (1991) employed the modified wording, as used by Harper and Kember (1986), 'I often find myself questioning things that I read in books or study materials' (Kember 1995: 234), which would have caused no problems for students taking courses by distance learning.

A different reason for rejecting the inference made by Joughin et al. is that they did not obtain any comparison data from campus-based students. This makes it very difficult to interpret their findings because one simply does not know whether a similar factor solution would have been produced if campus-based students were asked to complete the DESP inventory. In fact, few studies have reported the results of factor analyses carried out on responses to the individual items in the ASI. There is, however, one precedent for the pattern of results obtained by Joughin et al. in my very first study using the 32-item version of the ASI (Richardson 1990) with campus-based students in the UK (see Chapter 7). Here, too, the item, 'I often find myself questioning things that I hear in lectures or read in books', failed to show a significant loading on the factor identified with deep approach. In short, there is no evidence at all from the study by Joughin et al. that distance-learning students lack a critical or questioning attitude. Indeed,
the most that one could infer is that both campus-based and distance-learning students might, on occasion, fail to produce significant loadings on some of the individual items that constitute the DESP inventory. This simply provides further confirmation of the general conclusion that was reached in Chapters 6 and 7 – that the different versions of the ASI exhibit the same factor structure in distance-learning and campus-based students.

Thompson (1999) used the DESP inventory to try to predict persistence or attrition in external students in the fourth year of an education programme at an Australian university. Responses were obtained from 197 students who completed the units for which they registered during the relevant semester and from 61 students who withdrew from at least one unit during the semester. Thompson calculated their scores on 15 of the subscales, omitting the subscale concerned with English ability, and used the subscale scores in discriminant analyses to predict whether or not each respondent had completed the course units for which they were registered. (In the absence of any information, it would of course be possible to make correct predictions for 50 per cent of the students simply by random guessing.) Thompson found that the academic outcome could be correctly predicted in 67.5 per cent of the students using the scores on all 15 subscales. This suggests that the DESP inventory was moderately useful in determining which students persisted with the courses for which they were registered.

However, the detailed findings of Thompson's study were less promising. Only four of the 15 subscales showed a statistically significant relationship with the relevant outcome: withdrawal from one or more units was positively related to the students' scores on the subscales concerned with insufficient time, events hinder study, potential drop-out and negative course evaluation. Inspection of Box 8.1 reveals that three of these subscales come from the 'external attribution' scale and, indeed, this was the only one of the four scales to show a significant relationship with the outcome in question. Conversely, none of the four subscales taken from the ASI showed a statistically significant relationship with student withdrawal. In a separate discriminant analysis, Thompson found that the academic outcome could be correctly predicted in only 56.1 per cent of the students when using the scores on these four subscales alone, which is not very different from what could be achieved by random guessing. This suggests that approaches to studying are not, in fact, of much importance in predicting student persistence or withdrawal.

I mentioned earlier that it is not clear whether 'non-completion' means the same thing in campus-based education and distance education. One issue in the case of Thompson's study (which she herself acknowledged) is that the student population and the outcome measure were both different from those employed in the investigations carried out by Kember and his colleagues. Thompson's respondents were experienced students who had already obtained a bachelor's degree and who were in their fourth year of academic study towards a professionally relevant qualification. It is quite possible that their decisions to discontinue a unit reflected their lack of
interest in the particular course content rather than academic failure in any sense. (Thompson did not specify whether the units in question were 'core' or optional courses.) Consequently, such decisions are likely to depend upon idiosyncratic factors rather than upon their academic integration or social circumstances.

Another point is that any effects of the four ASI subscales upon student withdrawal might have been mediated by other factors being tapped by the DESP inventory. In this case, Thompson's statistical analyses would simply have 'controlled out' any contribution they might have made to predicting the relevant academic outcome. There is some evidence for this in the results of a factor analysis that she carried out on the students' scores on the 15 subscales. The primary factor was positively related to students' scores on surface approach and extrinsic motivation and was negatively related to their scores on deep approach and intrinsic motivation. However, it was also related to their scores on six other subscales, four of which also came from the scales concerned with academic integration and academic incompatibility. This suggests that student attrition is related to a single dimension in which approaches to studying play a central role.

Concluding summary

- Course completion or student attrition is a serious problem in campus-based education. The theoretical accounts devised since the 1970s suggest that it depends on the integration of the student into the academic structure and social life of an institution of higher education.
- Student attrition is also regarded as a problem in distance education. However, it is not at all clear whether 'non-completion' means the same thing in campus-based education as it does in distance education, or whether it should be regarded as something that is undesirable at all.
- Kember's (1995) model of student retention, based on similar notions of academic and social integration, appears to provide a useful account of persistence and withdrawal in distance education that is linked to prevalent ideas about approaches to studying in higher education.
- The DESP inventory seems to provide an adequate measure of the constructs underlying this model and is useful in predicting different measures of outcome. The DESP subscales drawn from the ASI show the same factor structure in campus-based and distance-learning students.