'22% - can we do better?'

- The CWP Retention Literature Review

Final report

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Contents

CWP Retention Literature Review

Survey specification

This review was commissioned by the Centre for Widening Participation at the Open University in April 2010. The survey specification was:

- To undertake a literature review of contemporary research into retention in distance education with an executive summary and recommendations for key areas of future research

- The literature review is to look at various aspects of retention and to include various stages of the student journey: e.g. retention of students up to course start date, on course/module retention, retention of students up to completion of degree/qualification

- The literature review will be used to inform various projects, and ultimately to inform developments in curriculum design and delivery aimed at distance learners

Brief biography - Ormond Simpson

Ormond Simpson is a consultant in distance education, currently working for the UK Open University, the London University External Programme where he is a visiting fellow, and Massey University New Zealand. His most recent post was at the Open Polytechnic of New Zealand where he was visiting professor. Prior to that he worked at the UK Open University in student support and institutional research. He has run workshops and seminars on aspects of students support in China, the West Indies, Colombia, South Korea, The Gambia and Papua New Guinea.

His distance education interests are in student support and retention, the cost-benefits of student retention, ethical issues in distance education, learning motivation, e-learning and staff development. He has written two books 'Supporting Students in Online Open and Distance Learning' and 'Student Retention in Online Open and Distance Learning' as well as ten book chapters and more than thirty journal articles.

He has a website www.ormondsimpson.com where some of his most recent work can be downloaded.

Executive Summary of the Review

1. Retention in distance education - the current picture

1.1 Retention and graduation rates in distance education are low.

International distance education graduation rates are very low compared with conventional face-to-face higher education. They are sometimes in single figure percentages. The OU's graduation rates currently at 22% are only about a quarter of full-time (82%) and half of part-time (39%) UK higher education graduation rates.

1.2 The OU's graduation rates have been falling and are likely to fall further in future.

Although there have been recent increases in new student retention, the OU's graduation rates appear to have been falling for some years. With a recent increase in the number of low previous educational qualification students entering the OU, retention rates - and subsequently graduation rates - are likely to fall further.

1.3 Most dropout occurs very near the beginning of a course or module.

In the OU nearly 40% of new students leave before the first assignment. There are substantial differences in dropout rates between modules.

1.4 Dropout may have substantial costs to students, institutions and society as a whole.

There is evidence that dropping out of full time education has harmful effects on the physical and mental health and employment status of dropouts, with corresponding costs to society as whole. Despite the high dropout rate in distance education similar data on dropouts has not been collected. However dropout 'costs' the OU several million pounds in forgone grant each year.

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2. Retention in distance education - research and the literature

2.1 There is little availability of retention-focused research literature in distance education.

There is proportionally very little material available on student retention in distance education compared with the large amounts dedicated to other topics. There are huge numbers of articles, books and website publications on different aspects of distance education. However only a very small proportion of these mention retention and even fewer take student retention as their main topic.

2.2 Retention-focused literature is often of limited value.

Where there is material on student retention it is often qualitative, seldom quantitative, does not use control groups, and is hardly ever subjected to a cost-benefits analysis or prioritised in any way. Research is often into 'enhancing the quality of the students' learning experience' but without any check to see if that leads on to increased retention.

2.3 Institutional retention projects have not often been successful in producing long term increases in retention.
Retention projects tend to produce long lists of recommendations which are unprioritised, uncosted and which tend to fizzle out after a few years,

2.4 E-learning - there is little evidence that e-learning produces increases in student retention. Whilst some forms of e-learning may enhance students' learning experience, there is little clear evidence that it enhances student retention except for the use of email - see below.

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3. Retention and retrieval support activities for which there is evidence.
There is evidence in the research literature for the effects of the following retention-focused activities. Where possible I have given the source of the finding and its cost and estimated reliability.

3.1 Phone proactive contact from the institution with new students before course start - OU source
A single phone contact from the institution to new students before course start aimed at learning motivation and integration with the institution.
Cost per student retained £250, RoI 600%, increase in retention 4.3%, reliability high.

3.2 Phone, email and other proactive contact from the institution with students during course - various sources
There is evidence from various institutions that a range of forms of proactive contact from institutions such as phone calls, email and even postcards have retention effects of 5% to 40%. There is little such evidence from the OU apart from one-off contacts to students in particular situations. There is some evidence for the *retrieval* of dropped-out or non re-registering students by proactive contact from the institutions to such students, at a rate of around 1.2%.
Costs are variable but low, increases in retention and retrieval are anything between 1% to 40%, reliability is medium.

3.3 Proactive support from individual tutors - various sources
There is evidence from various sources that proactive support from individual tutors has retention effects. This varies from increases of around 20% using tutor-signed mass emailings (non-OU finding) to increases of around 3% (OU finding).

However there is also evidence that around 30-40% of OU tutors do not undertake proactive contact with their students to enough extent to enhance retention.
Costs not recorded, increases in retention 4-20%, reliability high.

3.4 Student mentoring - various sources
There is evidence that student mentoring can have retention increases of between 30% (OU finding) and 5-10% Korea National Open University finding). However this is unlikely to be a very effective retention activity as the numbers of new students volunteering for mentoring will probably never be significant.

Cost per student retained (OU) £150, RoI 800%, increases in retention 5-30% reliability medium.

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4. Retention and retrieval support activities
for which the evidence is slight or tangential

4.1 Course choice activities
Since the second reason given for dropping out in withdrawal surveys is 'being on the wrong course' it seems likely that effort put into course choice advice of various kinds will have some effect on retention. However there are no studies which research this as far as I am aware.

4.2 External support
There is some evidence of the effect of support from family and friends on retention but not enough to make any firm recommendations.

4.3 Assessment
Assessment and feedback are key issues in retention but the evidence from distance education studies is limited. Data on when students dropout suggests that initial dropout is strongly related to the hurdle of the first assignment in the OU.

4.3.1 Formative assessment.
There is some evidence of the importance of formative assessment in both conventional and distance education, including evidence from 'rivergrams' that formative assessment in the OU improves the initial assignment submission rate by as much as 8 % points. However there is no data as to how that improvement carries through to the module completion.

4.4 Feedback
Meta-surveys of conventional education suggest that feedback as to how a student is doing improves their success more than any other single factor. But Gibbs (2010) argues that the OU does not make effective use of feedback and that changes are needed to get the full benefit of feedback - see 'Recommendations'.

5. Retention focused support activities from which there appears to be
no evidence either way
I have been unable to find clear retention evidence of the effect of e-learning, whether in the form of learning platforms, social software, computer forums, induction and remediation materials and courses. This is not to say that such activities do not enhance retention: just that adequate research does not appear to have been done. The danger of continued investments into such activities is that they may be at the cost of investments into more retention-effective actions.

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6. Retention focused course module design

There is not a great deal of evidence as to what constitutes a retention-friendly module.

6.1 Module workload and structure.

Despite distance educators' natural intuition there is very little evidence linking module workload with retention. Some data suggests that modules with more content actually had higher retention rates but this is not a clear finding. There is some evidence that flexibility in terms of content and assessment choices assists retention.

6.2 Module content and presentation

There is some evidence that two theories of course content and presentation - Keller's ARCS Theory and Cognitive Load Theory - have some effect on retention. Both theories require some attention to readability, reducing irrelevant material, avoiding redundancy, the use of worked examples, the greater use of informality and humour in text, and building in 'self-reporting' so that students know how well they're doing.

7. Barriers to enhanced retention

It is not enough to study what might increase retention - it is necessary to look at the barriers that militate against increased retention. These might include the attitudes of staff within an institution, the structure of an institution, who is responsible for retention, and 'dropout disempowerment' - the feeling that dropout is a fact of life and unchangeable by any reasonable activity.

Recommendations

Based on the findings of this survey these are the recommendations for immediate action. They are in order of importance:

Continue and expand the pre-course proactive phone call to all new students

Set up a system of personalised motivational email from the centre. Email should contain encouragement study tips and invitations to contact their tutor.

Nudge tutors into making more proactive contact with students by providing them with email merge systems etc

Research Proposals

All of the above recommendations should be researched with the exception of the precourse phone call for which sufficient evidence already exists.

(i) Multidisciplinary approaches. Given the difficulties of getting clear and unambiguous findings in distance educational research it maybe that useful findings will emerge from a multidisciplinary approach – i.e. by looking at fields such a psychology and sociology as well as conventional education. Psychologists such as Dweck and Cohen and Garcia may have perspectives that will be helpful. Another area of psychology that may have lessons for distance education is 'persuasion theory' since much of retention work is in effect persuading students to carry on. A wider literature review may be needed.

(ii) Tutor-student interaction. As noted above there is evidence that the quality of the tutor-student interaction is a critical factor in retention. But there has been little attention given to what 'quality' means in this context. One clear area for research will be to look into this factor in more detail, including how tutor supervision affects that way tutors support students. Not only is this area possibly the single most fruitful area of research, it may offer a number of quick and cheap retention fixes. For example 'Nudge Theory' might suggest that changing the way student data is sent to AL's could alter their approach to student support.

(iii) Myth -busting. There are a number of beliefs about retention in education and distance education for which evidence does not necessarily exist or which may even have actively been disproved. An example of the former is the use of learning outcomes where apparently there is no evidence to suggest that they increase retention. An example of the latter is the use of 'learning styles' which have been shown to have had no effect on student success. Despite this latter finding (by an OU professor) they still appear on the OU website.

'22% - can we do better?'

1. Introduction

'The main thing is ensuring that the main thing remains the main thing' - Coney

1.1 The nature of this report

This report attempts to be a tightly focused summary of studies which report clear evidence of successful, practical, evidence-based and cost-effective strategies for increasing retention in distance education, rather than descriptions of the problem or theoretical studies. It takes as a guide Karl Marx's quote 'Philosophers have tried to understand the world: the point however is to change it.' The survey net has also been cast wide in hoping to find alternative approaches where there is evidence of new and radical thinking.

There is a large body of literature concerned with definitions and models of retention. This report is not an attempt to try and replicate any of those studies except insofar as they suggest potential lines of future research.

But in retention there is, as Professor David Watson comments about widening participation research, 'so much diverse and unrepeatable research in this area, that someone with strong opinions can usually find something to support those opinions'. I acknowledge that danger and this report should be read with that in mind. And of course, despite the breadth of this survey I will still have missed much important material.

Note - the full references for this report are too long to include - these are available separately. A list of sources is quoted in the appendix.

1.2 A brief picture of student retention in distance education

Whilst this paper is not a survey of the state of retention in distance education it is nevertheless useful to just to give the barest outline of the issues.

1.2.1 Retention rates in distance education
Retention in distance higher education is almost invariably less – and often very much less - than retention in conventional higher education. Comparative rates (HEFCE) in the UK are:

	Open University	Part-time university students	Full time university students
Graduation rates after 11 years	22%	39%	82%

Table 1 UK Graduation rates compared by type of institution

This situation is little different outside the UK as illustrated by this data from Canada (Powell):

	Athabasca University.	Open University of British Columbia	Open University of the Netherlands	Télé-université de Québec,
Graduation rates after 8 years	5.3%	33.5%	2.5%	0.5%

Table 2 Some comparative distance education graduation rates

There are clearly many reasons why open distance learning might have lower graduation rates than full time higher education:

- Openness means that students with low or no qualifications may enter the institutions. Since their success rates are lower than those of conventionally qualified university entrants, that inevitably lowers the potential graduation rate – in the OU by perhaps 5% points as against conventional higher education.
- Some students gaining intermediate qualifications and leaving before graduation
- Some students only wishing to take specific courses and leaving before graduation
- Some students transferring to other institutions before graduation.

- and so on.

However most of these reasons for lower retention rates might also apply to part-time higher education, where retention rates are more than 17 percentage points higher than in the OU. This difference in retention remains largely unexplained.

1.2.2 The costs of dropout
It may be fair to say that there is some complacency about these levels of dropout in distance education. For example Powell (op cit) writes that "High program dropout rates may not be educationally a bad thing for distance education. After all, the expense to students and society is minimal even if the 'water is cold'".

But there is little evidence for this assertion. Dropout from full-time higher education appears to have considerable costs to students and society in terms of increased mental and physical ill-health, depression, indebtedness and unemployment (Bynner). These costs may amount to £3-5bn a year (Simpson). A recent German estimate ('University World News' 2007) puts the cost of dropout in German higher education as €8bn a year. I have failed to uncover any research into the costs to students and society of dropout in distance education in this survey. Given the numbers involved (around 10,000 new students drop out of the UKOU every year) it seems unlikely that the costs are 'minimal'.

1.2.3 The 'maximum possible increase in retention'
However it is not enough to dismiss arguments suggesting that dropout from distance education is somehow natural, without some attempt to discover what might be possible in improving retention through institutional action. Clearly there will always be some dropout for all the usual reasons – illness, domestic problems, employment issues, bereavement and so on. But what is

the level of this 'institutionally unavoidable dropout', and what is consequently the 'maximum possible increase in retention' that a distance education institution could aim for? I have attempted to make an estimate from the patterns of dropout and predicted retention in the OU both of which suggest a maximum increase in retention of around 15% points (Simpson, 2002). Such an increase would also bring the OU to near the UK part-time student graduation rate. But these can only be the very roughest 'guestimates'.

1.2.4 The characteristics of dropout in distance education
Much of this section is drawn from UKOU data as its data collection services appear to considerably better than many other distance institutions. However what evidence does exist about the dropout characteristics of other distance education institutions, suggests that the patterns of retention are very similar.

(i) Long term retention rates
Long term retention rates are difficult to compare as courses modules in the OU have a life of only around 7-8 years. But it is possible to compare the rates of successor courses – see figure 1 which shows the percentage exam pass rate and the percentage of students who get to the exam for the OU Technology foundation modules over 30 years.
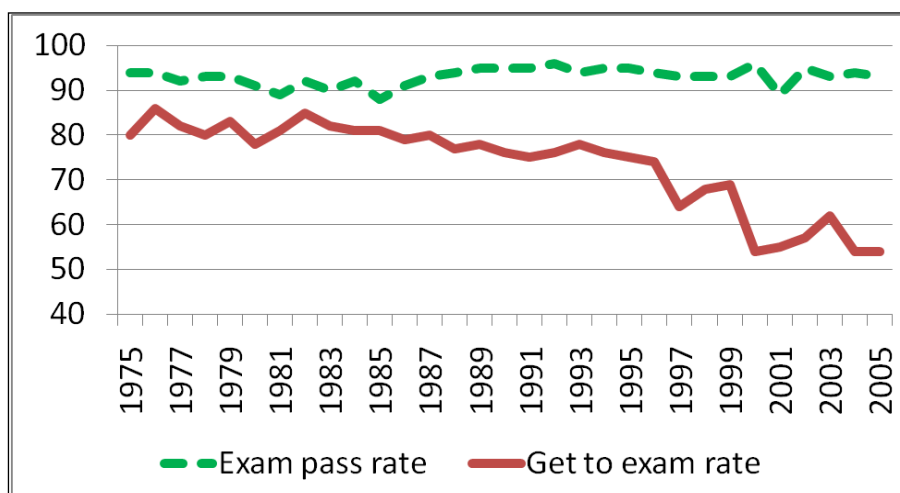
**Figure 1 % Exam pass rates and % 'get to the exam' pass rates
for the OU technology foundation courses**

Whilst the percentage of students passing the exam has remained fairly constant over a long period of time, the percentage of students who get to the exam (and therefore the overall completion rate) has slowly declined from around 80% in 1975 to 50% in 2005.

There is some heartening data that this decline may have been partly reversed in recent years - see Table 3 (over).

Year	FTE students at course start	FTE students completing	Drop-out rate
2004/05	19,589	11,287	42.4%
2005/06	20,172	11,763	41.7%
2006/07	20,840	12,470	40.2%
2007/08	19,315	11,675	39.6%
2008/09	20,462	12,718	37.8%

Table 3 OU FTE dropout rates

Note however that FTE (Full time equivalent) dropout rates may be a little lower than individual student dropout rates.

The completion rate of course modules is not the only measure of long term retention, as students then need to re-register on a series of modules to accumulate enough credit points to graduate. But it appears that re-registration rates between modules have also been declining – see figure 2:
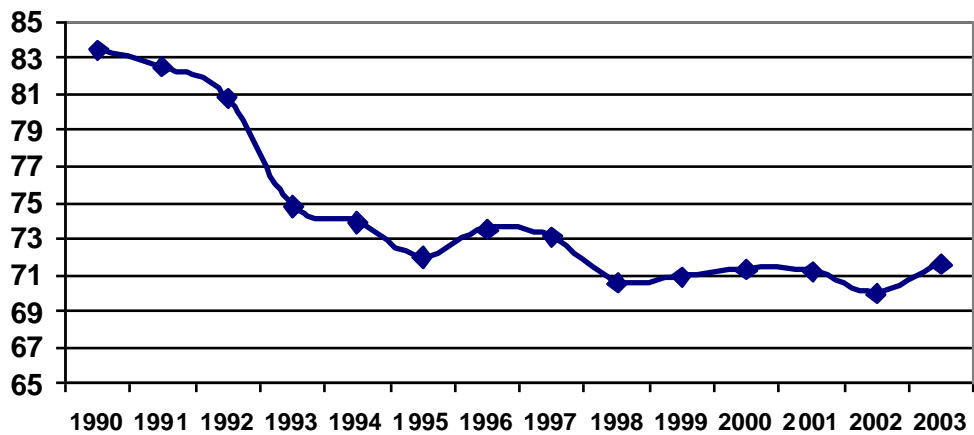
Figure 2 % Re-registration rates on the next module after first module completion

Whilst more current data is not available I understand from recent correspondence that despite the apparent levelling off between 1998 and 2003, re-registration rates have now fallen further.

Given this combination of module completion and re-registration rates it is not surprising that overall graduation rates have also been falling over a number of years. Since it can take students a number of years to complete the credit points for a degree, the graduation rate only levels off some six to eight years after entry – see Figure 3 (over):
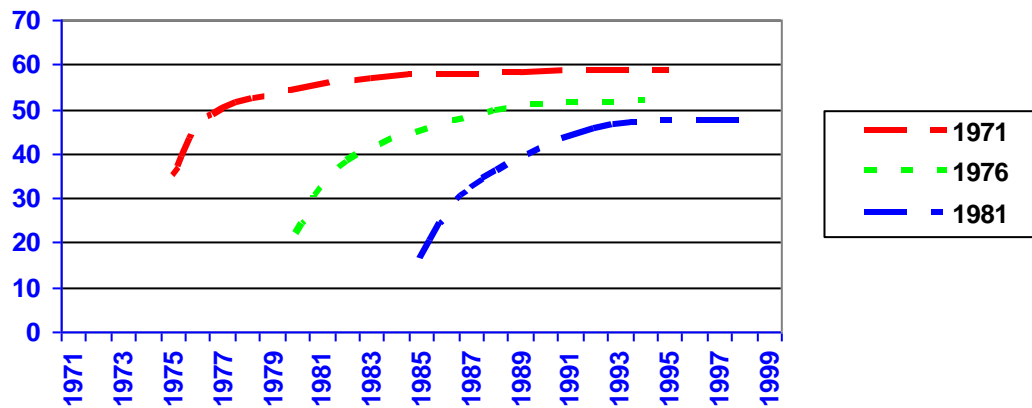
Figure 3 Accumulative graduation rates for students entering the UKOU in 1971, 1976 and 1981

It can be seen that the asymptotic graduation rate (the level at which graduation rates plateau) fell from 60% for 1975, to 49% for 1981 entry. Detailed data is unavailable for later years, but since the overall graduation rate over 11 years is now down to 22% (HEFCE) the trend downwards must have continued.

(ii) Retrieval

There is, of course, a relationship between module retention and graduation rates, but, as noted earlier, module completion by a student does not necessarily imply that that student will continue to graduation. Nor indeed does module dropout mean that a student will not eventually graduate since they can return to study at any time (there are students in the OU system still making progress toward a degree after 20 years or more). However it must be the case that in order to eventually graduate a student must either be retained on a series of modules, or be retrieved onto a module if they've dropped out of one or failed to reregister after completing one. The retrieval of dropped out or non-registering students is examined in later section (4.1.1).

(iii) The points at which dropout occurs

It is clear that in almost all distance education that dropout occurs very substantially at the beginning of a course. Figure 4 (over) is a 'rivergram' for new students in the UKOU in which the thickness of the 'river' at any time is proportional to the number of students active at that time.

ASSIGNMENT RIVERGRAM

100 students start the course. At each assignment some drop out and enter the 'exit' channel. A very few re-enter the 'progress' channel having skipped the previous assignment

Assignment 1   Assignment 2   Assignment 3

100 →   62 →   57 →   52 →   Progress

38 →   2 ↗   7 ↘   5 ↘

43 →   48 →   Exit
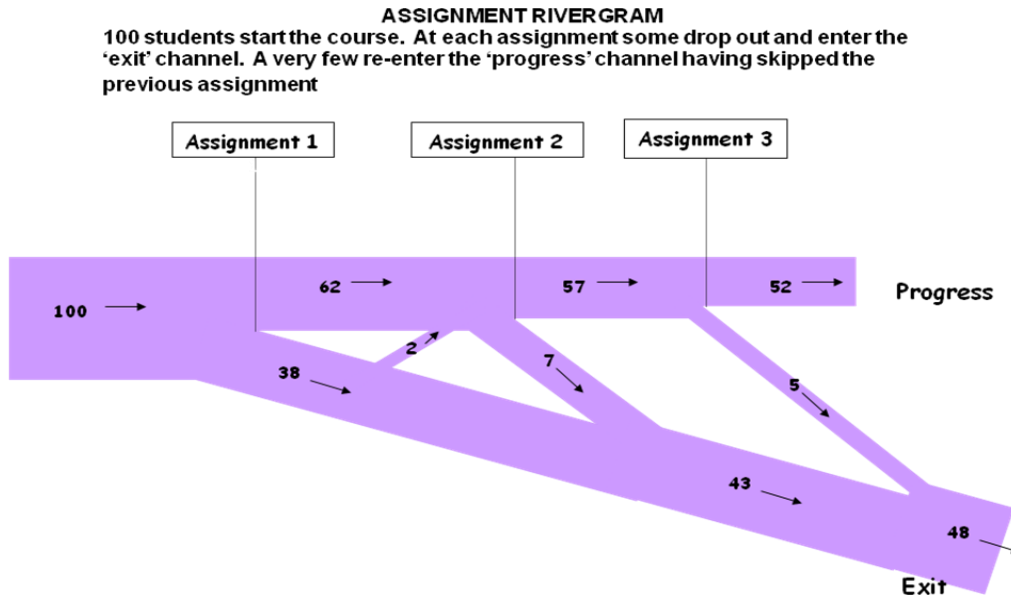
Figure 4 'Rivergram' for students on the UKOU science foundation course.

It can be seen that most students (38%) drop out or become inactive some time before the first assignment. Others dropout before subsequent assignments and the exam but in much smaller numbers. This is congruent with the active withdrawal rates for the OU – see Figure 5:

Number of new students withdraw-ing by week
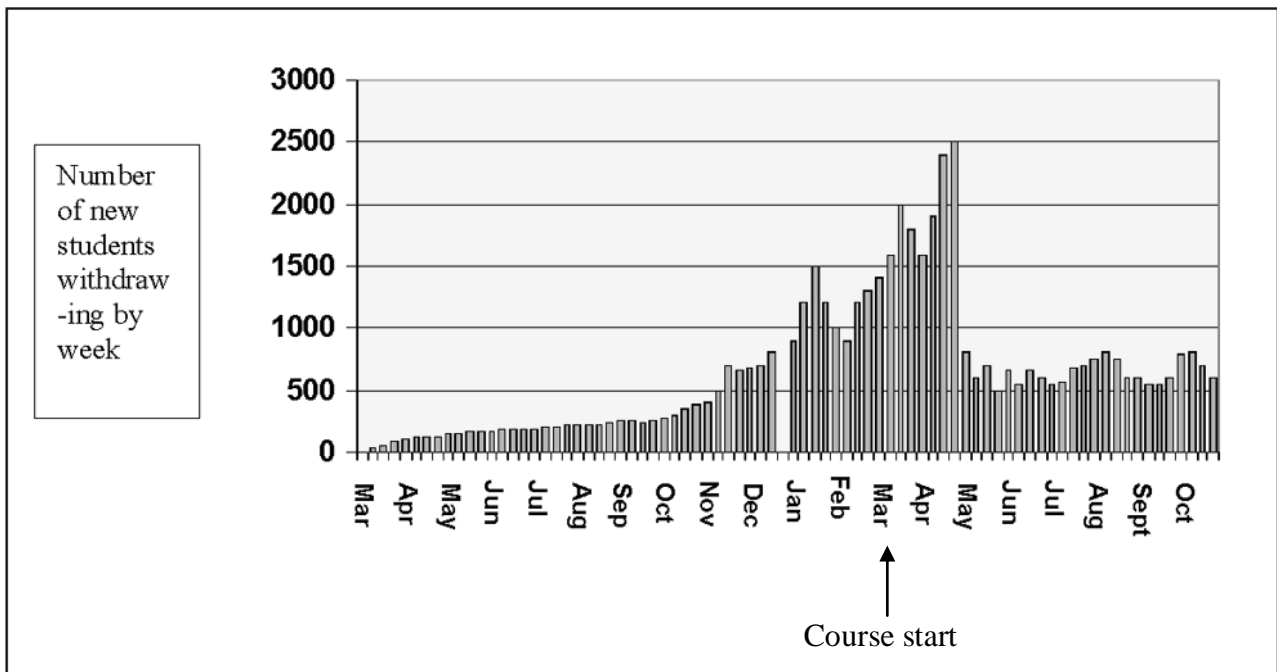
Course start

Figure 5. Withdrawal rates for new registered students from the year before course start (all courses) (OU IET Student Research Centre)

This pattern seems to be the same in most distance education institutions.

However it is not clear at exactly what stage before the assignment students become inactive. It could be a post registration decision before module start, or, more likely, on receipt of course materials, on accessing the module website or on tackling the first assignment. Nor does this diagram indicate anything about 'passive withdrawals' – students who cease to study but do not formally withdraw. There is some internal evidence that passive withdrawers follow much of the same pattern of withdrawal and for many of the same given reasons as formal withdrawers, but a more detailed picture is needed.

But it is clear that from both figures 4 and 5 that, in order to make any real difference to retention in the OU, retention focused activities, whether proactive or reactive, need to be heavily 'front-loaded' –that is they should occur before, at or very soon after, module start. This is not to suggest that retention activities should be entirely focused at this time – just that where resources are limited it would appear to make sense to focus them where they might make the most difference.

(iv) Differential module dropout rates
Finally another characteristic of student dropout on the OU is that different course modules have substantially different retention rates – see figure 6 which is a 'scattergram' of the percentage of students getting to the module exam versus the exam pass rate, each dot representing a module.

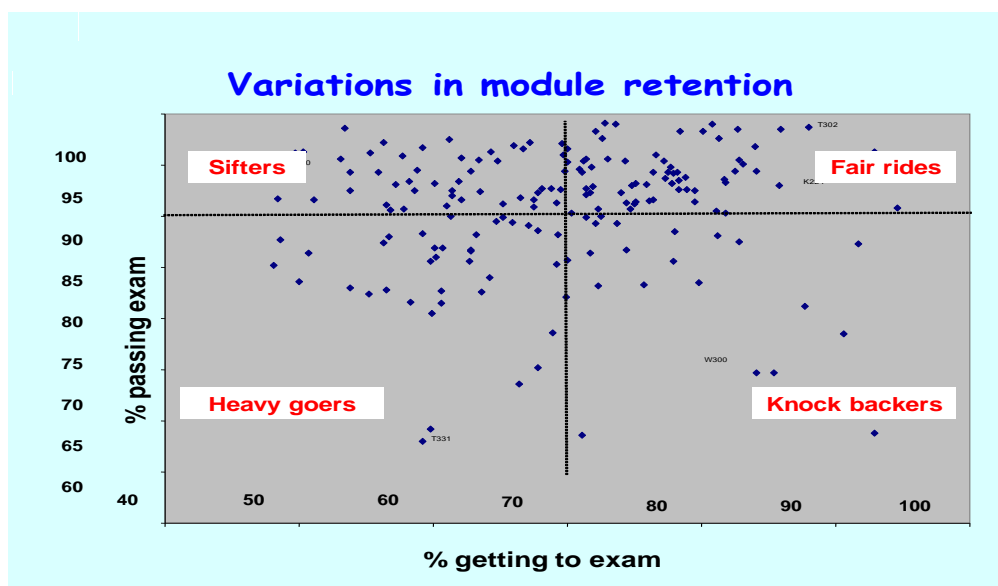**Figure 6 Scattergram for module pass and get rates**

Placing cross hairs at the average pass and get rates divides the scattergram into four areas, which can be colloquially labelled:
-   '*Fair rides*' for modules with high 'getting to the exam' rates and high exam pass rates,
-   '*Sifters*' for modules with high pass rates but lower 'getting' rates which are therefore acting to sift out students,

- *'Heavy goers'* which have both low pass and get rates,
- *'Knock backers'* which have high get to the exam rates but which then tend to fail students.

It has been suggested that this latter category should be of particularly serious concern, as representing failure of the 'contract' between students and university – that the exam should be a fair test of the module. The variations in pass rates can be illustrated by noting that the two courses at the extreme points of the scattergram are from the same Faculty and level.

There have been attempts to understand why these differences in module pass rates should occur – see section 4.1.4 Course module redesign.

1.2.5 Future trends in student retention

The data from figures 1 2 and 3 appears to show a long term trend downwards in retention in the OU. I have been unable to find comparable data available for other institutions. but given the relatively high levels of funding for the OU and its position as an international cynosure of distance education, it seems possible that similar pictures may occur in other institutions.

Recently it appears that the new student intake to the OU has changed, with now nearly 50% of new students having lower than standard UK university entrance qualifications (previously the figure was nearer 30%). Whilst this is excellent news from a widening participation perspective, it is clear that students with lower levels of previous educational qualifications drop out with greater frequency (roughly 45% of new students with less than 2 'A' levels drop out, compared with about 20% of students with previous degree qualifications - see Figure 7:
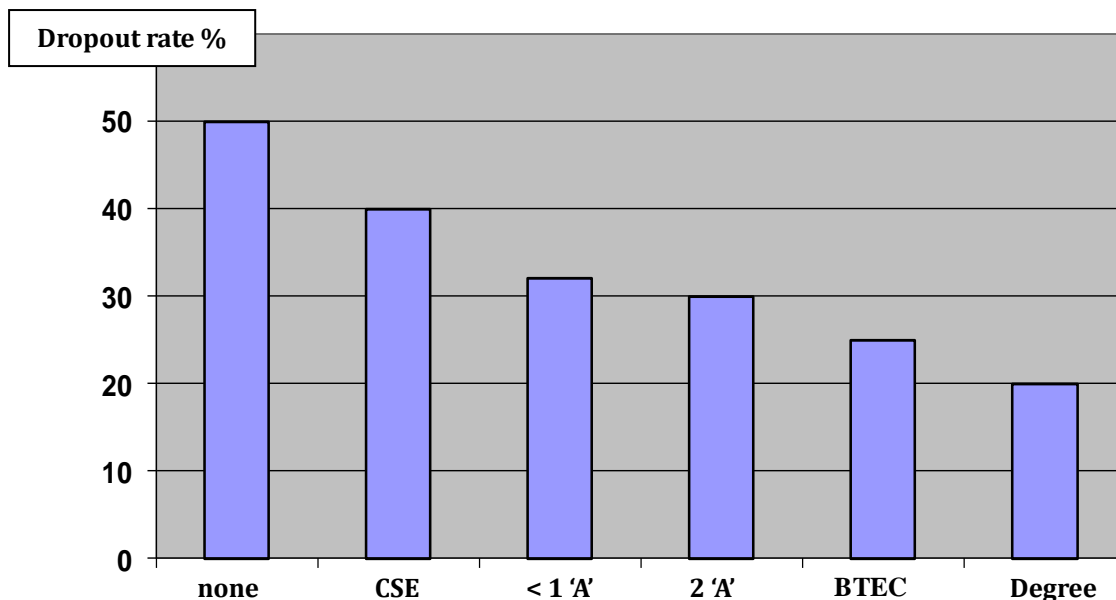
Figure 7 New OU student dropout rates (%) versus previous educational qualifications

Thus the change in new students' entry characteristics is very likely to push overall retention and graduation rates down still further, unless increased retention action is taken.

1.2.6 The costs of dropout

In addition there is some evidence from studies of full time student dropout which suggests that such dropouts may suffer long term effects such as increased levels of mental and physical illness, unemployment and financial indebtedness (Bynner, 2002). I have suggested that the cost to UK society of such levels of dropout may be of the order of £1-2bn per year (Simpson, 2009). A recent German paper (2008) estimated the cost of dropout in Germany to be roughly €8bn per year.

I have been unable to find any research into the possibility of the existence of such effects amongst dropouts from distance education. But if such deleterious effects exist, then given the magnitude of dropout from distance education they will exist on a large scale. And of course dropout can cost distance education institutions income - it costs the OU several million pounds a year in forgone government grant and increased marketing costs. This is not the time to suggest that dropout 'may not be a ...bad thing.'

2 Methodology

This survey focuses on recent (2000 to 2010, though not exclusively) distance education retention reports in journals, books and online both in the UK and internationally. It is not restricted entirely to issues of student support, as some of the more interesting material around appears to be on course and assessment design for retention. Re-designing courses and assessment for retention from scratch would be expensive and unlikely, but there may be ways in which courses can be amended which could make them more retention-friendly.

The approach to evidence is rigorous. As suggested in Section 3, the quality of much reporting in this area is not high, and very little retention research would pass the tests applied to medical and scientific research for significance, control group formation and so on. It is admittedly a difficult challenge to design high quality educational research, and there is a natural tendency amongst researchers for a 'funnel effect' – that is to only publish research which has positive outcomes, when sometimes publishing negative outcomes would be more useful.

2.1 The sources

A wide variety of sources were used as follows, and a summary of sources is given in the appendix. Material from more than 17 countries was included in the survey. I have not recorded all the references in this paper for the sake of keeping it to a reasonable length. A list is available from me.

2.1.1 Journals

More than 90 paper and online journals were examined in this survey. The range was deliberately set as wide as possible in the hope of finding articles which might not have been caught in other literature reviews. Those journals that appeared to be likely to have more retention focus were reviewed for up to ten years back.

2.1.2 Web searches

A number of search terms were used relating to distance education such as 'retention', 'dropout' 'non-completion', 'attrition', 'persistence' and so on. Links were followed from some articles. In all more than 250 online items were read in abstract or detail, but focusing as far as possible on refereed sources.

2.1.3 Articles received

A number of articles were received from various retentioneering colleagues around the world. Some podcasts were viewed although these tended to be light on evidence.

2.1.4 Books

A number of books were included in the survey, going rather further back than 2000.

3 General survey findings

3.1 Retention evidence – what is available in amount and quality?

There is now a huge variety of research publications available on distance education. But good evidence is hard to find in distance education, and retention research in particular appears to be a much neglected field.

For example the online journal EURODL has only two articles featuring retention in the last 13 years (both by this author) and searches in the journal on 'attrition' persistence' and 'non-completion' bring up nothing at all. The International Journal of E-Learning makes no mention of retention in ten issues. This situation is replicated in other journals. As Zawacki-Richte et al (2010) note, 'Research in distance education is dominated by studies that focus on interaction and communication patterns in computer-mediated communication, instructional design issues, learner characteristics, and educational technology'. Clearly retention does not appear in that list.

Zawacki-Richte also criticizes the quality of distance education research. But whilst referring to many areas of distance education research as being 'dreadfully neglected', the authors barely mention retention as a possible area of research at all. There are also criticisms of the methodology of research in distance education with Bray et al (2007) suggesting that much research results in a 'plethora of descriptive reports rather than analytic research' and that 'methods do not control for student demographics and educational characteristics'.

3.2 General characteristics of retention findings

To a large extent this section is a general impression of the many hundreds of retention articles and websites that I have scanned. It is not a quantitative survey, but a sense that many of the articles, websites, books, and podcasts surveyed in this report share many of the following common characteristics.

3.2.1 An emphasis on qualitative data.

Where there is evidence about retention it tends to be qualitative rather than quantitative, relying heavily on argument rather than data. Many articles are largely descriptive, relying on student surveys for their findings - see later. Indeed it is rare to find any retention statistics at all. This may be an indication of the sensitivity of such data in distance education institutions. Or it may also be an indication of the difficulty of actually finding adequate data – it appears that some institutions do not have good facilities for acquiring and analysing their retention data.

3.2.2 An emphasis on the 'high quality learning experience' concept

Many research papers and policy documents centre on the task of providing students with a 'highest quality learning experience' (the HEFCE strapline). The implication appears to be that that is the best that a distance educator can do, and that the rest is up to students. There seems to be limited recognition that the best learning experience you can give a student is *to pass their course.* The recent CETL papers from the OU for example have many papers which claim to offer a 'quality learning experience' to students: there is only one paper which mentions retention as an aim, but even then it makes no attempt to measure any increase in retention as a result of such work.

So an activity which only 'enhances the learning experience of students' may feel rather like going to a battlefield and offering the survivors manicures. Or to use a more educational metaphor it's like doing a course on cake icing and forgetting that you need to know how to bake a cake. By focusing on the learning experience, it is easy to forget that up to half your students may have already gone. 'Enhancing students' learning experience' may make for more learning amongst the already likely to succeed; it may not have much effect on those students who are likely to drop out.

3.2.3 The widespread use of surveys of student opinion
Distance education research naturally relies very heavily on the use of student surveys. These tend to be of three kinds:

(i) Surveys of learning experience. Much of the data on quality of the learning experience is of necessity derived from student surveys. But clearly such surveys usually only go to students who are still active towards the end of their course module – often less than half of the starters. They will therefore largely reflect the opinion of successful students. In addition surveys are often in effect comparing 'something with nothing' – students are asked to give their opinion of a service compared with the absence of a service. In such circumstances they are almost certain to give a positive view.

This is not to argue that such surveys are useless: only to suggest that, as in all surveys, it is vital to know what the survey audience is and what is being asked before drawing conclusions.

(ii) Dropout surveys. There are many reports of dropout student surveys. These tend to suffer from a very low response rate and do not always provide useful information. As Vincent Tinto notes, "The reasons for students dropping out are not the same as those that keep them in". This seems to be true about the OU withdrawal survey, which has been producing the same findings for more than 20 years – students say they drop out mainly because they didn't have enough time for various reasons or were on the wrong course. Whilst the second reason suggests that the OU could do more to get students onto the right course (see later), the first reason may be more often about loss of motivation and tells us very little about how students could be helped to keep going. As Anderson (2003) notes, "The best predictor of student retention is motivation. Retention services need to clarify and build on motivation and address motivation-reducing issues. Most students dropout because of reduced motivation."

Indeed it could be argued that such surveys can contribute to 'dropout disempowerment' - the sense that institutions can do very little about retention because the main apparent reason for dropout - students having insufficient time - is beyond their control.

(iii) Course surveys. In common with other distance education institutions the OU uses 'end of course' surveys to evaluate course modules. The questions used are fairly general, asking students to agree or disagree with statements such as 'Overall I am satisfied with this course'. Obviously the surveys go to students who are still registered at the end of the module, who will therefore be likely to have completed it successfully. So, as suggested previously, such surveys are unlikely to uncover much useful information about any elements in the module which might

be instigating dropout. As an alternative to generalised dropout surveys it may be worth investigating the use of 'course crash testing' surveys sent to dropout students. These would attempt to pinpoint specific points in a module at which those students tended to dropout. But I have not found any examples of such surveys in the literature, and indeed in common with other dropout surveys such surveys might well get a low response rates.

3.2.4 Studies which attempt to identify vulnerable student characteristics

There are a large number of studies that attempt to identify the characteristics of dropout or successful students. Some of these use statistical data about students to find, for example, whether older students, male students, or students with low qualifications are more likely to drop out. Whilst this is a vital step in getting to know more about students in general I have found no studies that then use this information in retention-friendly activities (apart from the OU's 'PaSS 'Project qv).

Other studies attempt to identify the characteristics of successful students in terms of personality features using various psychological tests. Whilst such findings are of some interest, they do not seem helpful in retention terms as it is hardly possible to change a student's personality.

3.2.5 A significant lack of cost-benefits analyses

There is an underlying assumption in much retention literature that retention is a pure cost to the institution. It is extremely rare to find a proper analysis of the cost-benefits of increasing retention. Given that almost all decisions in education are ultimately cost-driven, it is extraordinary that so little attention is paid to this aspect of retention. Yet there is evidence that retention-increasing activities can have returns on investment to institutions that more than cover the cost of the activities. This is true both of state-funded institutions as well as those funded entirely from student fees. Perhaps a change in perspective is needed to understand that it is dropout that is expensive, not retention.

In addition, undertaking cost-benefit analysis of retention activities would help institutions decide on their priorities amongst the various options available – see 'Recipe retention' below.

3.2.6 An emphasis on 'Recipe retention'

A very common characteristic of retention reports is that they involve recommending a list of retention-friendly activities. These lists can be quite long - the OU retention project involved more than 30 recommendations and lists from other institutions often involve around 20 or so. I think of this approach as 'recipe retention'. There is nothing inherently wrong with such lists but they generate a number of issues:

- What gets listed - lists often seem to illustrate Professor John Hattie's finding from meta-surveys that 'almost everything works' (Hattie, 2009). The selection of items from the whole range of possible activities often seems quite arbitrary.

- 'More and better' – many of the items on the lists are recommendations to do more of existing activities and do them better. But it is not always clear what more and better means in practice, what they might cost in staff time, and how improvements are to be made and sustained.

- Priorities – items on the lists are seldom prioritised, which raises the question of what do you do first since you can seldom do everything.

- Costs – relates to the above. Recommendations are very seldom costed in either time or money. Again since retention funding will always be limited it raises the question of what to prioritise.

- Evaluation – trying to do a number of things means that it is impossible to evaluate any single thing.

These, and other considerations are probably what inspired Veronique Johnston of Napier University to remark 'Trying everything that works, doesn't work' (Johnston, 1999).

3.2.7 'Fizzle-out' retention
There is another characteristic of retention projects, which is identified by Vincent Tinto, the doyen of retention in the US. It is that even where they are properly mainstreamed, many retention programmes fade out after only a few years (Tinto, Bogota, 2009). This appears true of the OU retention project which was only partly mainstreamed and has now faded away in a number of respects.

3.2.8 Studies of e-learning
As Zawacki-Richte (op cit) noted there is a large amount of literature on e-learning in distance education. One estimate suggests that more than 70% of published articles are on various aspects of e-learning. Many of these studies are in the 'quality learning experience' area – i.e. they examine the impact on students' perceptions of the quality of their learning experience of the provision of computer forums, e-portfolios, podcasts, wikis, blogs and Web 2.0 developments such as Second Life, Facebook and so on.

One of the difficulties of assessing the impact of e-learning in distance education is that it can take one or more of the several forms noted above. But whatever form it takes, the available retention evidence so far suggests that courses using e-learning generally have no higher and sometimes lower retention rates than conventional distance education. I was unable to find any rigorous evidence for any retention improvements due to the introduction of e-learning in any of its many forms.

The exception to this finding might be the use of computer forums, particularly tutor-moderated forums. Students who use forums may well feel more integrated with their tutor, other students and the institution as w hole, which might in turn, according to Tinto's retention theory, lead to greater retention. At the same time there is some evidence that some students have a negative experience of the online participation process (Thorpe et al. 2006) and it is not clear which of these effects is the most important. If new and vulnerable students are deterred from using forums at the outset of their studies then any improved learning experience for better students may be outweighed by higher dropout rates amongst the more vulnerable. But this of course is speculative.

The importance of this lack of evidence about the retention effects of e-learning is two-fold:

 - *Cost* - e-learning developments are expensive for both institutions and students. Resources put into more sophisticated e-learning developments will not be available to be put into more retention-friendly activities. Retention may suffer as a result.

 - *Access* - internet access is still restricted. Figure 8 (National office for Statistics, 2010) shows the percentage of UK households that have internet access at home.

Per cent with Internet
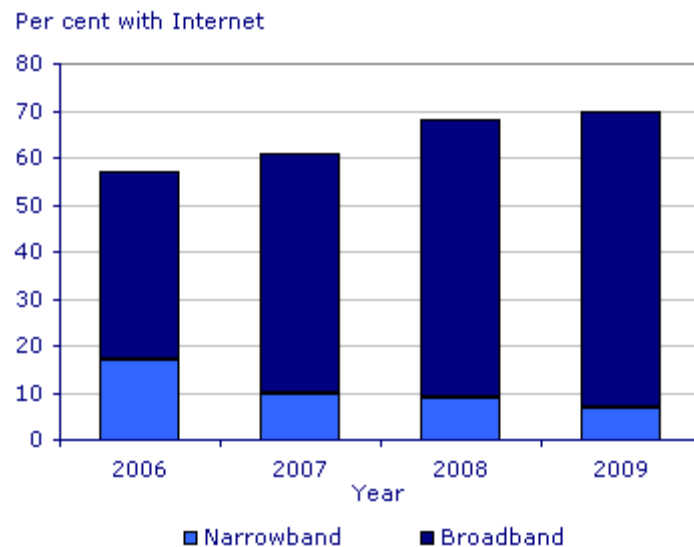
Figure 8 Household internet access 2009

Thus requiring new distance students to have internet access restricts the right of entry to distance education to 70% of the population (or 62% since attempting study via dial-up does not seem easily feasible). Paradoxically this may increase retention to some extent as internet access is concentrated amongst the more educated part of the population who are less likely to drop out. But that conflicts with attempts to widen participation.

It may be considerations like these that account for the appearance in the literature of more sceptical attitudes towards e-learning such as the comment (Zemsky et al, 2004) 'Universities have misunderstood the kind of experiences that learners have wanted and to have overestimated their eagerness to attain those ends electronically'.

3.2.9 The outsourcing of retention activity
One last finding from this survey is of the existence of outsourcing retention, at least in the US. There are now several companies in the US such as Noel Levitz Associates and the Compass Knowledge Group that will take on an institution's retention activities for a fee, which they claim will be less than the increase in income to institutions. The Compass group claims that it can achieve 90-95% module retention and a graduation rate of more than 70% 'through regular proactive action and personal interaction and decoupling and outsourcing the service chain'.

However the Group only 'targets only those students likely to succeed'.

It seems unlikely that such companies will set up in the UK. But there have been less likely educational imports from the US over the years.

4. Retention focused student support activities

I have divided up these recommendations into activities for which there is definite evidence to support retention, activities which might support retention for which the evidence is less clear including activities for which more research is needed, and activities for which, occasionally despite common belief, there is little evidence either way.

In some cases I have tried to give an estimate of the costs per student retained and the consequent return on investment in particular activities to the institution.

4.1 Retention focused activities for which there is evidence to support retention

4.1.1 Proactive support - from the institution
To make a difference to retention it is necessary for support to be proactive. As Anderson (US. 2002) notes 'Student self-referral does not work as a method of promoting persistence. *Students who need help the most seek it the least* [my italics]. Effective retention services take the initiative in outreach and timely intervention services.' In other words just supplying reactive or passive learner support which requires students to take the initiative to contact the institution may have little effect on retention. Caspi (2006) found that students experiencing difficulties with their text tried to deal with them firstly on their own, secondly by searching a website and thirdly by checking with their peers. They seldom took the initiative to contact their tutor. Nichols (New Zealand, 2010) noted that whilst students visit his institutional learner help website they actually make little active use of it. He theorises that it is necessary to have such passive support available to enhance students' confidence, perhaps for the same reasons as knowing the rescue services are available allows people to go mountaineering, even if in the event they seldom make use of such services.

Finally Dr. Alan Seidmann - editor of the US Journal of College Student Retention, promulgates a 'formula' for retention in full time higher education:

Retention = (Early + Continuous + Intensive) Proactive Contact

 - based on his experience of evaluating many retention studies.

Evidence of the value of proactive support appears from various sources:

(i) Proactive support in distance institutions other than the OU.
There is evidence for the retention effects of proactive contact from the distance institution. Mager (US, 2003) found a 625% return on investment for what he called a 'personalised and customised[1] telecounselling' activity which gave a 5% increase in retention. There are other

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1   By 'personalised' Mager means 'actions made for one person only (e.g. a personalized letter addressed to an individual, personalized phone call, etc.)'. 'Customised' means 'actions made in order to meet a particular person's needs (e.g., customized recruitment message, customized retention activity etc'

similar but rather old studies. Visser (1999) used a system of 'motivational messaging' in a small study based on Keller's ARCS model (qv) and claimed significant retention effects of around 27 percentage points. Chyung (2001) in a US study used a system of telephone calls also based on Keller reducing dropout from 44% to 22%. Case and Elliot (1997) used telephone contacts and found that between two and five contacts seemed to be the most effective, producing 15-20% increase in retention. Finally, in a very early study, Rekkedal (1982) simply used postcards in a Norwegian study, finding a 46% retention increase. All these studies claimed to have demonstrated retention effects but were all small scale, did not used control groups and (apart from the Mager study) did not adduce any cost-benefits. Nevertheless these studies are amongst the few that demonstrate any possible retention effects in distance learning and all use proactive support from the institution.

(ii) Proactive support from the OU before course start.
Proactive support is one of the few areas in the OU where good evidence exists and cost-benefits can be estimated. The OU's Proactive Student Support (PaSS) Project using a single pre-course phone call to an experimental group of new students found an average of 4-5% increase in retention over a control group of students with an identical predicted probability of success – see Table 1.

Year	Students in trial	Increase in retention of experimental group over control group
2002	2866	3.90%
2003	1354	5.10%
2004	931	4.20%
2005	10131	7.60%[2]
Average		**4.30%**

Table 4 Retention differences of students contacted in the OU's PaSS Project

It is possible to show that the cost per student retained for any activity is £100P/n where £P is the cost per student of the activity and n is the % increase in subsequent retention. In the case of the PaSS project the cost of the phone call was about £10 in staff time per student for a 5-10 minute phone call and the increase in retention was around 5%. So the cost per student retained was £(100x10/4.3) = £232.

However for a part state funded institution like the OU there is a direct benefit to the institution of increased retention. This arises from the Government funding body (HEFCE) whose grant is partly attached to increased completion rates and possible savings on marketing costs as fewer students have to be recruited to replace those who have left. In 2004 I estimated this benefit to be of the order of £1100 in grant and £200 in marketing, a total of £1300.

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2   The control group in 2005 was students who could not be contacted, and who may therefore be more likely to drop out. That may account for the higher figure. It has been discounted in calculating the average.

Thus the return on investment in this particular activity is (1300 – 232)/232 = 460%. Applied to all the 33,000 new students in the UKOU each year the investment in this programme would be £330,000 per year but would bring a return (a net profit) of £(330,000 x 460/100) = £1.5m.

(iii) Proactive support from the OU after course start. There is less evidence of the retention effect of proactive support from the OU at stages other than the pre-course stage. This may be in part due to the difficulty of identifying points at which such contact might be effective. Mayes et al (1998) identified no less than 15 different routes through which students could 'escape' the OU, such as active withdrawal, passive withdrawal, exam failure, exam resit offer non-acceptance, exam resit failure, non-registration for the next module, various administrative hurdles and so on. Setting up a system that would proactively contact students at such points would be complex but might be worth investigating.

There is however some evidence of the effects of institutional proactive contact in the OU. Gibbs (2003) conducted a comprehensive survey of OU Regional Centre efforts to improve retention through a mix of institutional and tutor proactivity. He found that that a proactive contact from the tutor increased assignment submission rates by around 3% but that direct contact from the institution itself (after the pre-module start contact in the PaSS project) had much less effect. There was some evidence of success where proactive contact was tightly targeted on a particular group such as in the 'Needless Fails' project (Blanchfield, unpublished) which used a specialised software programme ('Marx')to identify students who had withdrawn in mid course despite having done enough to pass continuous assessment. It was assumed that such students had misunderstood the complexities of the OU's assessment collation systems particularly the 'Substitution Rule'. Such students were subsequently phoned and this proactive effort succeeded in retrieving up to 52% of withdrawn students at a cost per student retrieved of £8. But I understand that assessment collation procedures have subsequently been simplified and that this problem may not now be on the same scale, although there have been other issues about assessment - see section 4.4.

More recently the Scottish Wider Access Retention Premium (WARP) project (2009) tried a proactive phone call to a group of students from educational advisers but this was discontinued because the advisers felt that it was not achieving its aims. No retention data was therefore collected.

(iv) Retrieval. The activity of getting students back onto a module after dropout, or getting them back onto the same module at a later presentation, or onto another module altogether, probably needs a different word from retention to describe it - such as 'retrieval'. In the OU retrieval used to be a function (if occasionally a somewhat neglected one) of tutor-counsellors. With the abolition of that role the record suggests that the activity has declined (Figure 2). Yet given the relative numbers (the 78% of new students who do not eventually graduate) retrieval is clearly a hugely vital issue in overall retention. There is some old evidence that writing to students who have actively dropped out can produce a roughly 10% retrieval rate in the 25% of students who respond who in turn are roughly 50% of the students on course – i.e. a 1.2% retrieval rate overall (Simpson, 1996). There was no cost-benefit analysis of this data.

There are experiments under way in the OU (the Pilot Student Support Teams) to provide

continuity of support which will presumably include retrieval and which will hopefully include a cost-benefits analysis.

 (v) Making institutional proactive contact happen. The great advantage of institutional proactive contact is that it can be made to happen in a regular systematic way. This is not true of proactive support from part-time tutors, so it maybe that institutional proactive contact still has a role to play after module start. Apart from the reports quoted earlier (Mager, Visser, Chyung, Case and Elliot) I have found no evidence of retention-effective institutional proactive contacts outside the OU. I understand that there have been some pilots for such contact inside the OU but I have seen no reports. It will be very important to develop and assess such pilots either using the predictive probability of success model to construct balanced experimental and control groups, or using sufficiently large number of students for statistical reliability. It will also be necessary to perform a cost-benefit analysis and compare the effectiveness of phone contact and mass and customised and personalised[3] email contact.

4.1.2 Proactive support - from tutors (other than the OU)
Much underlying retention theory from Vincent Tinto onwards suggests the importance of the 'integration' of the students with their institution as a driver of their retention. Since that concept is difficult to measure clear evidence for the theory tends to be hard to find, but nevertheless there is a now a substantial body of work which confirms that integration - however measured – is a critical factor in retention (at least in face to face education). Since isolation is often seen as the principal characteristic of distance learning, there is some justification for thinking that proactive contact from tutors might enhance that integration.

The Chyung and Case and Elliot (op cit) data suggests that continuing proactive contact from tutors with students has a retention effect and there is evidence from a study reported by Huett et al (2008) in the US who used motivational mass emails based on Keller's ARCS theory. These were delivered every two weeks during the course signed by the instructor for the course. The email contained reminders about goals, encouragement and suggestion about making contact with the tutor. The non-completion rates were compared with a control group of students who had no such contact and the results are shown in Table 3:

Group	Non-completion rates
Control	34.5%
Experimental	11.1%

Table 5 Comparative non-completion rates of students receiving 'motivational emails' over students not receiving them (n=153, statistically significant at 0.5%, Huett et al, 2008)

The content of the emails is not specified in the article but they were not personalised apart from the instructor's name. Nevertheless the reduction in non-completion rates is impressive and I

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[3] I note that emailings I receive from the political party of which I am a member are now personalised and address me as 'Dear Ormond' rather than 'Dear Member'. They are only customised geographically however.

have emailed one of the authors to see if any further information is available.

4.1.3 Proactive support from tutors in the OU

There is not much clear evidence of the retention effect that tutors have on students within the OU. Some preliminary evidence from the Proactive Motivational Support (PaMS) project in CWP suggests that there is a 'tutor-effect' on retention although this is not yet statistically significant. Gibbs (2003) in the OU found a 3% increase in retention from a pre first assignment contact from tutors although this did not necessarily carry through to module retention.

At the moment tutors in the OU are assessed on the quality of their marking and tutorial performance and this assessment will shortly be extended to other characteristics such as attendance at staff development events. The assessment will not include the tutor's retention rates. The given reason for this is that a tutor's group is essentially a small sample of a much larger group, so statistically a tutor's retention rates are quite variable from year to year. However a tutor's average retention rates tend to stabilise after several years, and the development of predictive methods suggests that it may be possible to 'benchmark' what a tutor's retention rates should be given the characteristics of the student intake to their group. This of course will be a sensitive area.

If proactive contact from tutors is likely to be an important factor in retention then what should be the characteristics of that contact and how might tutor behaviour be modified?

(i) Proactive contact from tutors – when and how much? The dropout pattern suggests that to make a difference to retention contact needs to be as early and as frequent at the beginning of the course as possible. Given the pattern of dropout later contact might be less frequent. Burt (2005 unpublished) ran a 'thought experiment' where he asked students to imagine how much satisfaction they would expect at various levels of proactive phone contact from their tutor. He found that satisfaction more than doubled from zero to one contact but levelled off after around 3-4 contact per module – see Figure 9.
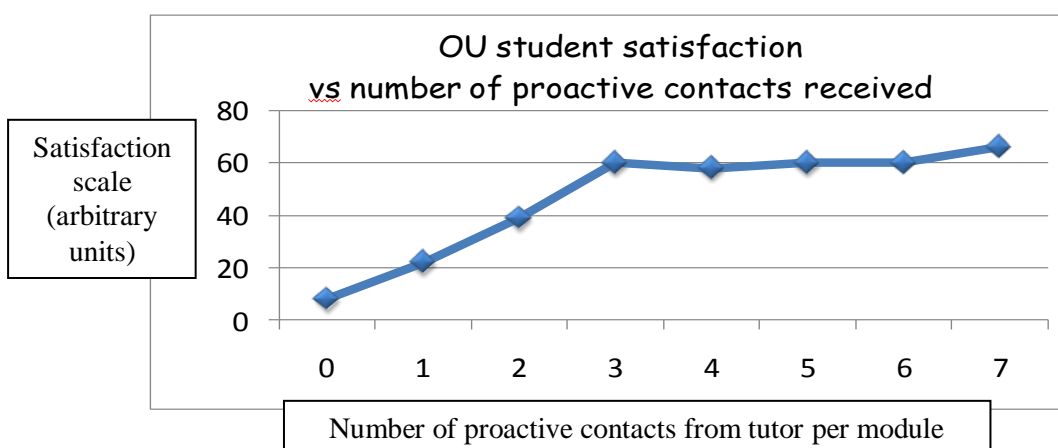

Figure 9 Expected Satisfaction vs. number of proactive contacts

There is no necessary connection between expected satisfaction at various levels of contact and retention. But the data does suggest that a high level of proactive contact may not be necessary for increased student satisfaction, which may in turn be a clue to how much contact would increase retention.

(ii) Proactive support from tutors – what? If tutors make more proactive contact with students then those contacts will necessarily be shorter if tutor workloads are to remain the same. I have argued elsewhere (Simpson, 2010) that such contact will need to focus on helping students 'switch on their motivation to learn' (Garcia, 2008) rather than on teaching. But the experiments to find clear evidence for this approach will be hard to design. It may be that the best evidence will be found from a closer examination of what tutors with consistently high benchmarked retention rates actually do.

There is some evidence from Gaskell et al (1998) and Richardson et al (2009) that two most important characteristics of tutors valued by students are knowledge expertise, followed by 'approachability'. The quality of approachability may repay closer research as to how it is expressed by tutors and whether that has any effect on tutor retention rates.

(iii) Proactive support from tutors – how? Peasgood (2010, unpublished) found that students showed a clear preference for telephone contact from their tutor rather than email. However it maybe that 'personlised and customised' (to use Mager's definitions) messages may have more effect than group emails - there is some evidence from psychological studies that messages addressed by name are more likely to be read than those addressed to (for example) 'Dear Student'. If that was the case (and more research would be needed to establish that) then the use of email merge systems will be important.

It is important to note that learning platforms, even with active material such as e-portfolios and computer forums with tutor presence, are not truly proactive. If a student is losing motivation then the first thing they do is to stop visiting the website. If such platforms are used then there needs to be a system of alerting tutors to student nonappearance on the platform so that proactive follow-up can be made. However the evidence from Simpson (op cit) is that even with the fastest identification in place, the immediate retrieval of a quiescent student may be unsuccessful, given the pace of study and the difficulty of persuading someone to reverse a decision they've made.

The same applies to face to face tuition. Whilst it is impossible to doubt the value of face-to-face tuition for those students able to attend, it is nevertheless true that it has to some extent been the preserve of well-motivated and well-off students with the ability to travel and find child care.

(iv) Proactive contact from tutors - why doesn't it always happen? It is an article of faith in the OU that tutors are very dedicated, hard-working and very committed to their students. That is certainly true of many tutors, probably particularly those at Openings and Foundation level. Nevertheless there is evidence that a proportion of tutors - as much as 30%to 50% of the total - are only fulfilling minimal service standards (Gibbs, 2003; Stevens, undated). This evidence is derived from surveys where for example tutors are asked to report on activities undertaken with students, and where that proportion do not respond or fail to engage with the process.

(v) Proactive contact from tutors - modifying behaviour. If it was to be decided that it was desirable that tutors make more proactive contact with their students then developing that policy will present some challenges. Merely writing that into a contract may not necessarily have the desired effect. Changing tutor behaviour is a complex activity. It might be worth researching various ways in which tutor behaviour could be modified, such as:

- *'Nudging'.* Thayer et al (2009) suggest that one of the most effective ways of changing behaviour is through 'nudging' subjects into making choices rather than using any kind of compulsion or coercion. In this model tutors might be persuaded into making more personalised proactive contact by simply making it much easier to do so. Examples of such nudges might be:
  - making it easier for tutors to make proactive contact by the provision of mail and email merge systems including label and envelope printing, the ability to send SMS texts from a website, pre-addressed postcards and so on
  - the provision of suitable materials to send to students in the form of news, study tips, hints for assignments and so on.
  It may be possible to research such a system of extra support to tutors to see whether retention rates are improved in their groups compared with controls.
- *Modelling.* It is possible that modelling proactive support to tutors may motivate them to make proactive support to their students. Such a process would mean making proactive contact with tutors at regular points where their proactive contact with students is important. Again this approach may be researchable.
- *Giving retention feedback.* Tutors receive considerable feedback on their TMA marking but (outside the OU's Openings as far as I know) do not receive any information about their retention rates. Whilst retention rates are very variable there should be ways of statistically manipulating them to give tutors feedback in ways that forefront their importance.
- *Focusing attention on retention.* The OU's Openings Programme is highlighting retention by setting up tutor computer forums for discussions for increasing retention. This seems an approach worth pursuing and evaluating.

In his survey of proactive contact Gibbs suggests a modelling approach - the use of dedicated 'retention staff' to provide both direct proactive contact with students and proactive support to tutors[4]. Such proactive support should be targeted both in terms of time and people, such targets to be selected on the basis of evidence as to what is most effective. The Scottish WARP Project is developing an approach along such lines but has yet to report on any results.

Such activity would be costly so it will be important to undertake cost-effectiveness studies which may need to extend over two module presentations or more. But if tutors are motivated by an institutional proactive contact to make proactive contact with students, there could be a multiplier

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[4] This is hardly a representative sample but I note in my own experience as an OU tutor that I have no contact at all from line managers during the module presentation. There is a contact after the end of the module but that can have little effect on promoting retention efforts by a tutor. Whilst line managers are very busy this suggests that the possible implications for student retention of support to tutors may not be understood. Of course it may also represent a conscious acknowledgement of tutor autonomy but that seems to me to underestimate the need for tutor support.

effect on student retention which could be increasingly cost-effective. The cost of the activity could be reduced by focusing the tutor support in the first few weeks of a module - up to the first assignment - as this is the crucial time for retention.

4.1.4 Mentoring

Mentoring – using experienced students to support new students - has been shown to have a retention effect in two studies, a very small scale one in the UKOU where retention was increased over a control group by up to 32%, and a much larger study in the Korea National Open University which found increases of 5-10% (Boyle et al 2010). The RoI in the UKOU study was estimated to be around 800%.

However mentoring involves students volunteering to have a mentor and it is not clear how many students would volunteer if it was rolled out much more widely, and whether such an activity would have a large retention effect. A Scottish WARP project study found that the take up and impact on completion rates of a mentoring scheme was insufficient to merit its extension.

4.2 Retention focused activities which might support retention but for which the evidence is not clear or is tangential

4.2.1 Course choice activities.

The second most common reason given by dropped out students on UKOU withdrawal surveys is that they were on the wrong course. Like the first most common reason, ''not enough time' this may be a rationalisation but Yorke also agrees that it is a very substantial reason for dropout in full-time higher education. I have not found any research which finds a clear link between improved course choice activities and increased retention – such research would be quite challenging to design - but nevertheless given that most distance students, including in the OU, register for course over the internet without any interaction with an adviser, it seems advisable to investigate.

In fact the OU at least has what appears to be a useful range of course choice resources such as Taster Packs, Student Reviews and diagnostic quizzes available online. But there seems to have been little research into how well these work, how much students use them, and whether they change their minds as a result.

- *Taster packs*: a small survey found no evidence that students using Taster Packs were wrongly deterred from taking courses (a Faculty concern). Students reported that their motivation to take a course was often increased because they felt they could see more accurately the challenge they were undertaking. The most popular items in the packs were the examples of students' assignments and tutors' comments on those assignments. Unfortunately many of the online tasters on the OU's website do not have that material.

- *Student Reviews*: whilst apparently still a very popular site I have not found any research into their effectiveness as a course choice activity.

- Diagnostic quizzes: there are two basic types of diagnostic quiz -

(i) Course specific diagnostic quizzes are widely used in used in 'sequential' (i.e. numerical and science) courses but not in more literature based courses. There is some evidence from a survey of science diagnostic materials that while students enjoy taking the quizzes they seldom change their course choice as a result. This may be a reflection of the general finding from psychology that choice decisions once made are seldom changed. Thus it may be important to place diagnostic quizzes before initial course choice as far as possible rather than after.

(ii) Generic diagnostic quizzes are designed to evaluate a student's general readiness for distance study as a particular level regardless of course topic. They could therefore be used for non-numerical courses to some extent. They have not been used in the UKOU as far as I know. However a recent study in UNISA (Prinsloo, SA 2010) gave students a questionnaire based on a diagnostic self-assessment questionnaire derived from the OU's Predictive Student Success model. The questionnaire gave students feedback on their chances of success and how they might improve them. The researchers found that students who used the questionnaire had higher retention than those who didn't use it although the study was too small a scale to draw definite conclusions.

4.2.2 External support
When students were asked to rate the importance of various sources of support (Gaskell et all 1998) they prioritised them as follows:

1. From families and friends
2. From their tutors
3. From other students
4. From their employers
5. From the institution directly

In an effort to test these findings Temperton (1998) set up a 'black box' project, interviewing at regular intervals students who it was thought were likely to drop out. The intention was to try and catch students at or just before the point of dropout, to see if anything could be learned at that point, rather than relying on questionnaires sent after the dropout occurrence. In the event too few students dropped out (possibly because of the regular contact from the interviewer) so too little data was acquired for any safe conclusions to be drawn. Nevertheless Temperton's tentative conclusion was that those students who did drop out were those who had less in the way of very local support from families and friends.

There is also evidence of the importance of family support in academic achievement from Roman (2008) although this was in a Spanish context.

Findings such as these led to the placing if a 'Family and Friends' page on the OU website. As far as I know this has never been evaluated in any way and given the complexity of the OU's website it seems quite likely that few families or friends ever find it unless by accident. Given the apparent importance of such support to students this may be worth re-visiting to see if any

evaluation is possible with the further possibility of adding a similar site for employers.

4.2.3 Assessment and feedback
Clearly there must be intimate links between the topics of assessment, feedback and retention. Indeed Hattie et al (2007) have found that feedback can improve learning in full-time education better than anything else if used well. But equally it may be that assessment drives dropout – the rivergram in Figure 4 suggests that it is either the receipt of course material or the first assignment that is an underlying cause of the more than 35% dropout in the first few weeks of the course. The distribution of dropout in Figure 5 implies that it may actually be the assignment which is the catalyst for the dropout decision, as dropout occurs in increasing amounts until the date in April at which some fee waiver is possible rather than on the receipt of course material in February.

There are a number of ways in which assessment might drive retention forward.

(i) Formative assessment
Professor Mantz Yorke argues that dropout in full time higher education could be much reduced by the use of formative assessment (assessment that only offers feedback but which does not count towards course final grades). Indeed there is some evidence from rivergrams that this might be the case in the UKOU. Some years ago the OU's Science Foundation course was rewritten and one of the changes was to introduce a formative assignment at the beginning of the course. Figure 10 is the revised rivergram for the course:
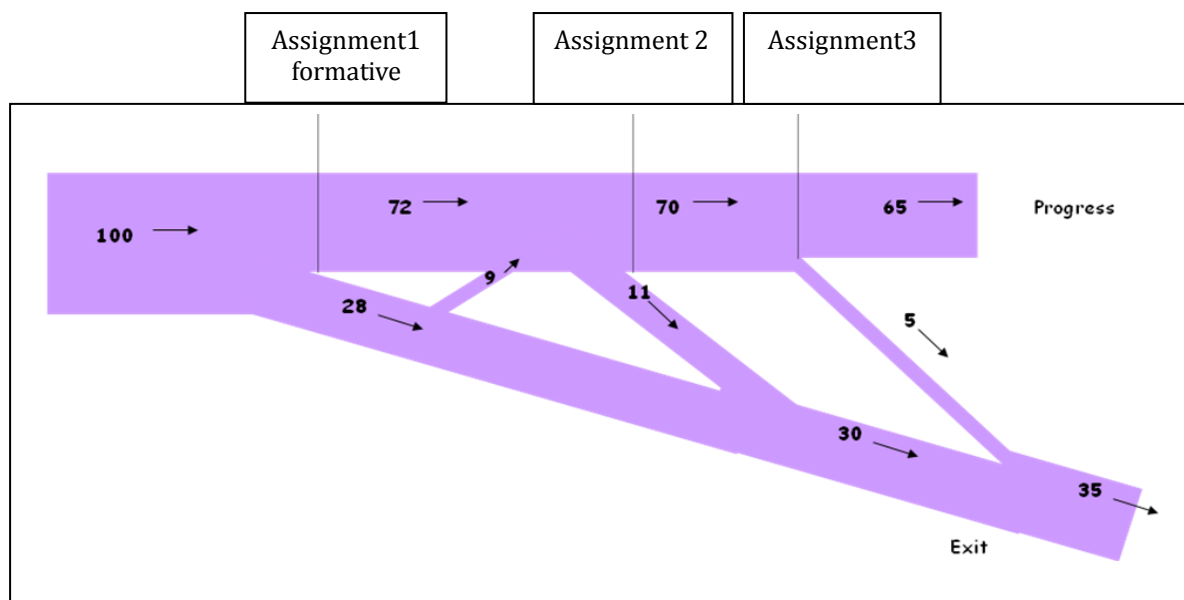
Figure 10 A rivergram for a course with a first formative assessment

Compared with the rivergram for the previous course version in Figure 4 it can be seen that the number of students continuing on the course after the formative assignment is higher at every stage by around 8% points. It is not possible to compare the final retention rate on the course as the two courses differ in other ways, but it seems probable that the increase carries through to

the final assessment at least.

There is also evidence from O'Neil (2005) of the importance of formative assessment although no figures are given.

The OU has one of the most advanced assessment and feedback systems in distance education and indeed often more advanced than conventional universities in terms of its organisation (and expense). But Gibbs (2010) argues that the OU 'misses a number of opportunities in a way that limits the impact of some of its other efforts'. In particular Gibbs notes that it is known that assignments with feedback on them lead to more learning than assignments with marks and feedback, but, as the OU 'puts marks on everything', it therefore limits the usefulness of its feedback. In other words the OU does not use formative assessment as usefully as it might.

(ii) 'Meta-cognitive awareness' in assessment
Gibbs argues in his article that in order to benefit from assessment 'students need to see exemplars of different grades, make informed guesses as to the grade they deserve and discuss this with students and then a tutor'. He notes that the Re-engineering Assessment Practices in Scottish Higher Education (REAP) report finds that developments of this kind have shown worthwhile improvements in first year full time student retention. He adds 'Very little of this goes on the Open University'.[5]

It would clearly be difficult (or at least expensive) to arrange some of these developments in the OU. Yet it would be easily possible to provide students with exemplars of assignments with tutors' comments and grades. In the Taster pack survey already cited the most popular item was indeed the specimen assignment with such comments and grades, and it would seem to be a relatively simple step to provide such exemplars either online or - as assignments booklet are often reprinted each year - in the booklets themselves.

(iii) E-assessment
Given Hattie's and Gibbs comments about the value of frequent feedback in enhancing student success, assessment may be an area where e-learning methods may be helpful in improving student retention. For example e-assessment offers the possibility of using short self-assessment questions in online text with answers given to multiple choice quizzes (although Gibbs criticises the use of such quizzes as encouraging students to take a surface approach to learning). I have not yet found any research which demonstrates such uses, but research is continuing - for example it is a topic at the next EDEN conference in Budapest http://www.eden-online.org/eden.php

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[5] Gibbs also criticises the use of 'Learning Outcomes' pointing out that students at Oxford (which does not use them) still have the highest rating in the National Student Survey for experiencing 'clear goals and standards'. It is also the case that the OU's Centre for Outcomes Based Education (COBE) can find no evidence that using learning outcomes has any effect on student retention.

'22% - can we do better?'- The CWP Retention Literature Review

4.3 Retention activities for which there seems to be no evidence either way

There are many activities aimed at 'enhancing the student's learning experience' which might have some effect on retention but for which it has proved very difficult to find clear evidence. Obviously it could be argued that this in large part due to the practical and ethical difficulty of setting up controlled trials. Nevertheless all these activities require resource investment - in the case of e-learning sometimes very considerable investment. Thus the choice to invest in them as against investing in more clearly retention-effective activities is one with implications for retention.

4.3.1 Learning Platforms

Learning platforms, whether Moodle, Blackboard, WebCT or custom-built, are one of the most resource-intensive areas of distance education development. Most evaluations are based on student questionnaires with the concerns that have already been expressed about 'asking the already successful'. However Massey University in New Zealand are designing a learning platform with the express aim of addressing student retention and it maybe that some useful findings will emerge from that.

4.3.2 Social software and computer forums

(i) Social software such as Facebook, Second Life etc have been enthusiastically adopted by some universities   Justifications for their use are based on their possibilities for overcoming student isolation and increasing engagement as well as for teaching. Again it has been difficult to find any clear evidence of retention effects from using social software and indeed there has been evidence from a JISC survey (2008) that whilst students are keen users of social software such as Facebook they are less enthusiastic about their university using social software for teaching purposes.

(ii) Computer forums can be either unmoderated or tutor-moderated. Whilst some students are eager users of unmoderated forums there are clearly also a number of less enthusiastic students who find forums intimidating or irrelevant. It is possible that forums are largely used by students who are well-motivated and therefore less likely to dropout rather than the uncertain and more vulnerable students who are more likely to leave. Of course forums may contribute to the general integration of students in the institution but I have been unable to find clear evidence of a retention effect of using unmoderated forums. As Moore (2008) remarks about computer conferencing "Group discussion are not as valued as personal help from the tutor."

Tutor-moderated forums may have more effect on retention where a tutor is proactive in supporting students especially where systems exist to pick up students quickly when they fail to log on to a VLE (Anagnostopoulou and Parmar, 2009). Of course tutor-moderated forums will be considerably more expensive to run than unmoderated forums but again clear cost-effective data is lacking.

4.3.3 Induction and remediation courses and materials.

Most distance institutions provide various kinds of induction and remediation materials as well as

occasionally some face-to-face sessions.

(i) Induction materials. These are materials (text, video, online) which are designed to help new students adapt to the differences between conventional and distance education. Whilst it would be quite reasonable to assume that good induction materials might have a retention effect I have been unable to find any research into what would constitute effective induction material. I would suspect that such material needs to be especially motivational and therefore based on Keller's ARCS theory more than on the simple provision of information. But research would be quite difficult to design.

(ii) Remediation materials. These are generally self-standing materials designed to help students overcome deficiencies in the previous education (either in learning skills or knowledge) which become apparent as they study. I have not been able to find clear evidence of their effectiveness and indeed there is some suggestion that such materials are seldom helpful. Anderson (2003) notes "Remediation may work in the short term but will disable students for higher achievement. The best that remediation can help anyone to become is mediocre. Don't expect non-credit materials to do what credit courses have to accomplish' and Morgan et al (1982) suggest that 'Study skills training that does not consider motivation... may result in little skill improvement'. Indeed in a full-time higher education context there is some evidence that where the results of remediation attempts are followed up that remedial study is no help to students' ('Maths support at the LSE'. Report - THES 14/4/06). Given that the initiative in distance education to seek out remedial materials must come from the students it seems even less likely that those materials will be effective.

(iii) Induction and remediation face-to-face courses. The OU has used such courses for many years, but although there is some evidence of their success in increasing retention amongst the attendees, the courses inevitably recruit from students probably already well-motivated and able to travel. It is not safe therefore to infer their success as retention activities (Gibbs, 2003).

4.3.4 The balance between reactive and proactive institutional support
It is clearly very difficult to evaluate the relationship between the provision of reactive services - systems set up to deal with students incoming queries, and proactive services - systems set up to take the intuitive to contact students. I have argued in a previous section that proactive services are particularly important in increasing retention as vulnerable students are much less likely to contact the institutions to ask for help. But where to prioritise the resources for these is a difficult question for which I have seen no answers in the literature. It may be that the provision of proactive support may reduce the need for reactive support as questions are pre-empted or students motivated to seek their own solutions. But again there is no evidence in the literature.

5. Retention focused course module design

Increasing student retention in distance education is not all about teaching and student support. Indeed as Moore (2008) notes "Course content is much more important than interaction". Clearly some course modules have higher retention rates than others (Figure 5) and it seems likely that it is possible to re-design course modules to increase their retention rates.

There are a number of module characteristics which could affect retention such as workload, flexibility, content and presentation.

5.1 Module workload
It would appear intuitive that there should be a link between course workload and dropout – course with high workload having high dropout and vice versa. However it appears that few clear links have been found. In particular Crooks (2005) found no link between students' reported workload and dropout rates. Perhaps students on high workload modules are forced to be more engaged – see Woodley below - or perhaps there is a problem with the research methodology.

5.2 Module structures
In a rather old study Woodley (1993) appraised UKOU course modules with low retention rates and found that compared with higher retention modules they were
- older
- slower – a lower content over the same study period
- had few TV or radio programmes or set texts

Thus in general such modules were less involving than retention-friendly courses. However it was not possible to control the student intakes to these modules which may well have been different. The OU does now have a predictive model which could be used to compare modules more accurately and this may now be an important area for (somewhat controversial) research.

In a later study Crooks (2005) appraised a UKOU course module which appeared to have unusually high retention rates – AD317 'Religion Today'. She found that compared with course modules in the same faculty at the same level, the module had a high level of in-built flexibility in terms of the choice of materials to study, the time at which it had to be studied and in the topics for assessment. It may be that the module recognised the way that distance learners have to fit study into their lives more effectively than more rigid modules.

5.3 Module content and presentation
There are at least two theories which have been applied to module content and presentation – Keller's ARCS Theory and Sweller's Cognitive Load Theory. The two are complementary to some extent as Keller's is a motivational theory and Sweller's a cognitive one.

5.3.1 Keller's ARCS Theory

Keller's ARCS Theory states that in order to motivate students to learn material, such material should get and keep their Attention, be Relevant to their needs, enhance their Confidence in the process and promote the Satisfaction with the outcomes. Keller's Theory might suggest various strategies for course content –

(i) Attention - the use of humour and empathy to get attention and the application of readability tests to keep attention.

- Humour and empathy. Theory suggests that the most effective ways of getting attention are to use humour[6] and to display empathy with the learner's feelings of apprehension. Whilst OU course units sometimes do the latter it is unusual to find the former - perhaps for fear of being accused of not being academically serious.

- Readability (i) Cloze tests. Datta and Macdonald Ross (2002) using 'cloze' tests (filling in word gaps in sentences) found that 42% of new OU students might have lower comprehension than needed for courses as their previous reading was largely newspapers and magazines.

- Readability (ii) Flesch Reading Ease Scale (FRE). There are a number of readability tests of which the FRE is one of the easiest to apply (it comes with MSWord). FRE is a measure of the ease of reading a text based on an algorithm which counts syllables per word and sentence length. The scale is:

Flesch Reading Ease score	Interpretations
0 - 20	Very difficult
20 - 50	Difficult
50 – 60	Fairly difficult
60 – 70	Plain English
70 – 80	Fairly easy
80 – 90	Easy
90 - 100	Very easy

Table 6 Flesch Reading Ease Scores

Flesch's recommended score for ease of reading for most text is a minimum of 60 - plain English. The Reader's Digest scores 65 on the scale. Scores below 50 are difficult - the Harvard Law Review scores 30. The text of this report scores 50.

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[6] The oldest reference to the use of humour in education may be dated AD400 and is due to St Augustine 'Reawaken your students with remarks spiced with seemly good humour' *De catchizandi Rudibus*

Moore (2004) used the Flesch Reading Ease scale to measure the readability of the opening pages of OU Foundation courses and found the following variations (Table 7):

OU course modules initial pages	Flesch Reading Ease score
Arts Foundation	47.1 – difficult
Social Science Foundation	55.2 – Fairly difficult
Maths Foundation	39.9 - difficult
Science Foundation	53.7 – Fairly difficult
Pre-degree intro course	58.1 – Fairly difficult

Table 7 Flesch Reading Ease scores for the initial pages of OU foundation courses

This compares with the Reading Ease scores of some newspapers:

Newspapers	Flesch Reading Ease score
Sun	62.8 – Plain English
Daily Mail	61.5 – Plain English
Mirror	60.5 – Plain English
Guardian	44.5 – Difficult
Telegraph	48.8 – Difficult

Table 8 Typical Flesch Reading Ease Scores for UK newspapers

It can be seen that OU foundation courses are mostly in the 'Fairly difficult' band except to the Arts and Maths foundation modules which are 'Difficult'. These opening units will be perceptibly more difficult to read than the tabloid press so may present a leap in comprehension for some students. This is not to maintain that an entire module should be written at such a level but that some care might be necessary in writing the first few chapters of a course. Nor is it necessary to change the essential content of a course to raise its FRE - in an example taken from the Open Polytechnic of New Zealand I was able to raise the FRE of a correspondence text from 13.5 'very difficult' to 30.5 'difficult' merely by re-formatting the text and not changing the vocabulary at all (Simpson, 2009).

However there is not much research that links retention on a course with its readability, apart from some rather old research (Mouli and Ramakrishna, 1991) in which the authors claim to have found links between readability and exam scores. But given that readability tests are easy to apply and that readability scores can be raised without altering the content of a course it seems worthwhile evaluating course readability as a matter of routine.

(ii) Relevance - ensuring that everything in a text is relevant to what the student is learning. In essence this is the same as the Cognitive Load theory of minimising extraneous load by avoiding redundancy - see below.

(iii) Confidence - helping students acquire confidence in the processes by which they learn. Since, for example, the tutor characteristics most desired by students are knowledge expertise and approachability (Gaskell, op cit) this may mean that course materials should be written in less formal terms using first or second person rather than the third.

(iv) Satisfaction - Hattie (op cit) found that the most important single factor in student progress is 'self-reporting'- knowing how well they're doing. Hence the need for self-assessment questions and formative assessments - see section 4.2.3 on assessment.

There is some modest evidence of the use of Keller's theory in course content and presentation from Colakoglu et al (2010) whose results suggested that students on courses designed using Keller's ARCS theory were better motivated than controls.

5.3.2 Cognitive Load Theory (CLT)
CLT states that for learning to take place it needs to be taken into the working or short term memory and then transferred to the long term memory. The efficiency with which this occurs depends on the 'Cognitive Load' of the materials being studied. There are three types of cognitive load:
1. 'intrinsic' due to the inherent difficulty of the subject, which needs to be managed; for example by 'segmenting' knowledge
2. 'extraneous' due to the way the information is presented, which should be minimised; for example by avoiding redundancy[7] and not 'splitting attention'
3. 'germane' load due to the way information relates to previous information; this needs to be maximised.

There are a number of suggestions for increasing the efficiency of the working memory such as using worked examples, integrating sources of information, reducing redundant sources, and so on. The theory is explained in more detail by Clarke (2006).

Cognitive Load Theory may be important as it figures in a two of the very few published articles on course design for retention. Impelluso (2009) claimed that using Cognitive Load Theory to redesign a course increased retention and Rasch (2009) found that using Cognitive Load Theory increased the efficiency of learning.

In a brief examination of the instructions given to course writers in the OU I have found very little that focuses on maximising the retention effect of course modules. This appears to be an area ripe for research.

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[7] Whilst in no way a research finding, I note in the courses that I have taught in the OU that it is often redundant (or enrichment) material that causes students the most problems. Students often have no way of distinguishing irrelevant materials from core materials in a course.

6. Barriers to enhanced retention

It is not sufficient to examine those activities that support retention. Given that apparently everyone believes that student retention is a good thing and that large amounts of funding are supplied by HEFCE to universities in the UK (including the OU) to support it, why is retention not increasing, or even, as in the case of the OU, possibly actually decreasing? What, in other words, are the barriers to increasing retention in higher education and distance education in particular? There are a number of possibilities.

6.1 Institutional attitudes
According to Johnston et al (2003) the biggest barrier to retention is the institution itself, and in particular, the staff attitudes to learning and students within the institution. In distance education where the interface between tutor and students is so critical it may be a particularly potent factor in retention. There seems to be little known about tutor attitudes and how they might affect retention although there is evidence of some interest in the field from Lahteenoja (2005), Smith (2008) and Simpson (2010) who divides higher education staff up into categories such as – 'Darwinista - we're here to weed out the unfit', 'Fatalista - here to provide a good learning experience to those sufficiently motivated' or 'Retentioneer - here to help students be the best they can be '. Such attitudes may repay further research.

6.2 Institutional structures
Whilst institutional structures can aid retention, they may also militate against it in various ways. To take some OU examples:

- *The abolition of the tutor-counsellor role,* which eliminated the on-going link between students and Associate Lecturer between courses. Whether this was in any way responsible for the decline in re-registration rates since that time, has not ever been established. If it was, then it may well be an illustration of the Law of Unintended Consequences, since the abolition was intended to cuts costs but may well have increased them, as increased dropout cuts the OU HEFCE funding and increases marketing expense.

- *The change in contracts for Associate Lecturers,* which by rolling up separate payments into a salary, abolished the link between assignments marked and payment. Again it is not possible to link this to any decline in retention rates, but it has some of the hallmarks of a 'nudge' against retention since it means that tutors spending time to get students to submit assignments are in effect cutting their own pay rate per hour since they are not paid for that effort.

Perhaps the only lesson that can be drawn from such changes is that they should be carefully assessed for their effects on retention, their unintended consequences and their long-term cost-benefits.

6.3 Difficulties in mainstreaming retention in the long term
I have already noted Tinto's suggestion that there is a tendency for retention programmes to fizzle out. There might be a number of reasons why this should be so:

(i) Retention responsibility. In many institutions there is no one person specifically responsible for retention. Responsibility is either spread between several members of staff or rests notionally with a senior member of staff who has many other responsibilities.

(ii) Dropout disempowerment. As noted previously, the emphasis in distance education appears to be on providing a high quality learning experience but without checking to see if that translates into higher retention. Perhaps this is a reflection of the perception that retention is simply too difficult and intractable a problem and that it is beyond the power of people to change it significantly. In the OU high dropout seems to be regarded as the price the institution pays for its strategy of open entry, although as I have argued previously, without more knowledge of the effects of dropout on already largely educationally disadvantaged students this may be an unduly callous policy.

Finally there is often the assumption that retention would require more resource, effort and time than institutions can afford. I have suggested previously that in distance education it is not retention that is expensive - it is dropout. But that view is not (yet) shared by enough distance education staff and changing to that view may be the biggest retention challenge of them all.

Ormond Simpson   16 July 2010

APPENDIX

(i) Journals consulted

Active Learning in Higher Education (ALHE)
Sage UK
Adult Education Quarterly (AEQ) Sage US
*Adult Learning (AL) Am. Scholars Press US
American Educational Research Journal (AERJ)
Am. Educational research Assoc US
*American Journal of Distance Education
(AMDE) Penn state University US
American Journal of Education (AJE) Chicago
US
American Journal of Sociology (AJS) Chicago US
American Journal of Psychology (AJP) Illinois
US
Assessment and Evaluation in Higher Education
Routledge UK
Assessment and Evaluation in Higher Education
(AEHE) Routledge UK
Assessment in Education (AE) Routledge UK
Australian Journal of Psychology Aus Psych Soc)
Australia Psychological Assoc
*Brit J. of Educational Psychology (BJEP) UK 80
1
Brit. Educational Research journal (BERJ)
Routledge UK
Brit. J. of Educational Studies. Blackwell UK
*Brit. J. of Educational Technology (BJET) Wiley
UK 41 2
*Brit. J. of Sociology of Education (BJSE) T&F 30
6
Brit. J. of Special Education
Brit. J. of Guidance and Counselling
Brit J of Psychology
Camb J. of Education
Can. J. of Experimental Psychology
Computers and Education
Curriculum Journal
*Distance Education (DE) Australia 30 3
*Education in the North, Aberdeen Univ. (EN)
16
Educational Action Research Aus/UK
Educational Psychologist US
Educational Psychology in Practice (UK)

European J. of Education
Evaluation and research in Education
Higher Education
Higher Education Digest (HED) CHERI UK
*Higher Education Quarterly (HEQ) UK
Higher Education Review
*Indian Journal of Open Learning (IJOL) India
International Journal of Educational Research
International J. of Educational Development
International Journal of Engineering Education
International Journal of Lifelong Education
International Journal of Management Education
(IJME)
International Journal of Psychology
International Journal of Quality Studies in
Education
International Journal of Research and Method
in Education
International Journal of E-learning (IJEL)
Journal of Access Policy and Practice (JAPP)
Journal of College Student Retention (JCSR)
Journal of Computer Assisted Learning (JCAL)
Journal of Educational Administration
Journal of Educational Computing and Research
Journal of Educational Media (JEM)
Journal, of Educational Psychology (JEP)
Journal of Educational Research
Journal of Further and Higher Education (JFHE)
Journal of Higher Education
Journal of In-service Education
Journal of the Learning Sciences
Learning and Instruction (LI)
Open Learning
Oxford Review of Education
Quarterly Journal of Distance Education (US)
Research in Higher Education (US)
Review of Educational Research (RER)
Sociology of Education
Studies in Continuing Education
Studies in Higher Education (UK)
Teaching in Higher Education

(ii)Online journals consulted

Turkish Online Journal of Distance Education
European Journal of Open and Distance Learning
International Review of Research in Open and Distance Learning

(iii)Books consulted

'Keeping students in Higher Education' - Moxely et al
'Staying or leaving the Course' – McGivney
'Retention and student success in Higher Education' - Yorke et al
'Fixing or changing the pattern' – McGivney
'What works in Distance Education' - ed. O'Neill
Economics of Distance and Online Learning' ed. Bramble and Panda
'Supporting Students in Online, Open and Distance Learning' - Simpson
'Student Retention in Online Open and Distance Learning' - Simpson
'Studying at a Distance' - Talbot
'How we learn' - Illeris
'Global Perspectives on E-learning' - Carr-Chelmann
'Teaching student s to learn' - Gibbs
'Ethical Practices in Distance Learning' Demiray and Sharma

(iv) Search terms used

1. Retention distance education/learning
2. Persistence distance education/learning
3. Attrition distance education/learning
4. Dropout / drop-out / drop out distance education/learning
5. Non-completion distance education/learning
6. Non-continuation distance education/learning
7. Withdrawal distance education/learning

(v) Countries contributing findings to the survey

Australia, Canada, Colombia, Finland, Germany, Greece, India, Korea, Malaysia, New Zealand, Nigeria Norway, Papua New Guinea, South Africa, Spain, Sweden, Turkey, UK, USA.