The Open University

Designing for Student Retention
The ICEBERG model and key design tips

by Jitse van Ameijde, Martin Weller & Simon Cross (IET)

Foreword by

Prof. Denise Whitelock

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Student retention is not only important to the Open University, but according to Tinto (2007) is "one of the most widely studied areas in higher education". Despite the four decades of research into this area, see Becker (1990); Leslie & Brinkman (1987) and Hearn & Longanecker (1985), substantial gains in student retention have not been achieved. This means there is certainly more to explore about this topic and Jitse van Ameijde, Martin Weller and Simon Cross have certainly undertaken some important research which has resulted in this Quality Enhancement Report.

They concur with other researchers, that retention is a complex issue (Nagda et al, 1998; Thomas, 2002; Lau, 2003) but what is new and fresh about this report is the focus on distilling a number of empirical findings into a set of seven principles for retention. The emphasis here is upon using Learning Design in a systematic and coherent fashion to influence student retention.

Van Ameijde et al have produced the ICEBERG model for Learning Design. They state that effective design for student retention involves a curriculum which is Integrated, Collaborative, Engaging, Balanced, Economical, Reflective and Gradual. The ICEBERG principles acknowledge Tinto's (1975) Student Integration Model which suggests that both social and academic integration needs to take place in order to enhance student retention.

Many authors advocate that the main determinant for retention is that students make academic progress and feel they are doing well with their studies. The approach advocated by van Ameijde, Weller and Cross is to design the teaching materials with this premise in mind.

I look forward, in the near future, to reviewing the findings from the implementation of the ICEBERG strategy for Learning Design. This strategy fits well with the "Students First" drive currently taking place in the Open University.

28 July 2015

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About the authors

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Jitse van Ameijde works as part of the Learning Design team in IET whilst being a part time Associate Lecturer in Systems Thinking. He has a broad interests in how students learn and how to design effective pedagogies which students experience as engaging and worthwhile. He is also interested in the wider mysteries of life and sitting outside in the sunshine drinking cappuccino whilst studying people walking by.

Martin Weller

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Martin has been involved in many of the OU's e-learning developments, including being director of the VLE, leading the SocialLearn project and chairing the first major online course (T171 with 12,000 students). He is currently the Director of the OER Hub, leading research into the impact of Open Educational Resources. He is also Academic Director of the Learning Design project. His research area is in digital scholarship and open education. He has authored four text books in alarming, including recently The Digital Scholar (2011) and The Battle for Open (2014), both available under Creative Commons licenses. He blogs at edtechie.net

Simon Cross

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Simon is a Lecturer in Educational Technology and has worked on a range of both externally-funded and OU-focused projects about learning design, assessment, learning analytics, MOOCs, and the learner experience. He was involved in the original OU Learning Design Initiative and has taken a leading role in research about the student experience of assessment, and strategic measures of assessment practice and process. Simon is presently writing for two post-graduate modules and works with STEM as a Data Wrangler.

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The importance of retention

Enhancing student retention is important for various reasons. Not only does student drop-out have adverse consequences for students, for whom withdrawal can have both financial and emotional implications, but also for the University where high levels of student drop-out will adversely affect both the financial and the reputational position of the University. KMI figures estimate the cost of drop-out per student at £2,700. Even small improvements would have significant benefits for the University, for example, enhancing student retention on big population modules (>1000 students) by 3% is estimated to increase University income by £2,195,100 per annum. Increasing retention by 5% across all modules would significantly address the decline in income from decreased student numbers since the introduction of fees. It is, therefore, of high priority for the University as a whole.

Of course, some level of drop-out is inevitable particularly with open entry. Some students might realise that OU study is simply not for them or be unable to complete a programme of study for a variety of personal and professional reasons (Institute of Educational Technology IET (IET) Student Statistics and Surveys, 2014). Life events that impact study are outside the University's control and thus we will always accept a certain level of student drop-out. In such cases, drop-out could be the best option for the student with the possibility of students retaking a module at a later stage, something which has been made easier with the introduction of assessment banking. Similarly, there will be students who will pass and succeed largely on their own. However, there is also a subset of the student cohort for whom drop-out is not desirable and who could have been retained under the right circumstances. It is for these "at risk" students that we seek to find strategies to improve student retention and progression.

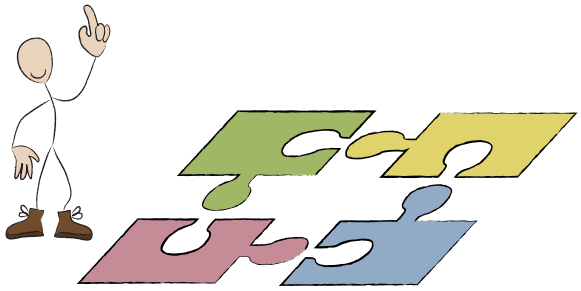
Student retention is a complex, multi-faceted issue that is highly dependent on contextual factors. However, there are design-related aspects which have been identified as important for enhancing retention across most contexts. *This document focuses only on the aspects of module design that can influence retention*. We present seven key design principles which together serve as a starting point for thinking about effective design to support student retention on modules and qualifications. These factors are based on an analysis of the external literature (Appendix A and B), a review of internal projects which have looked at student retention (Appendix C), a qualitative review of well and poor performing modules in relation to retention, in-depth structured interviews with experienced Module Team Chairs (Appendix D) and a thematic analysis of SEaM (Student Experience on a Module) open comment data on six modules (Appendix E).

The seven principles define the type of curriculum which supports student retention and for each principle we provide a brief description and some helpful prompts to structure the process of thinking about curriculum design. Effective design for student retention involves a curriculum which is Integrated, Collaborative, Engaging, Balanced, Economical, Reflective and Gradual (ICEBERG). Following the ICEBERG model are ten specific tips for designing with student retention in mind.

Seven key design principles of designing for retention

Integrated

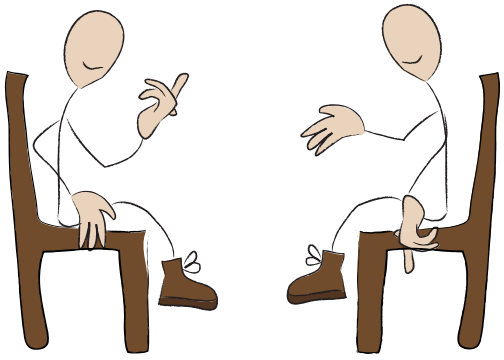
A well-integrated curriculum constitutes a coherent whole where all the parts work together in a meaningful and cohesive way. This means that there is constructive alignment between learning outcomes, assessments, activities and support materials which all contribute effectively to helping students to pass the module (see Appendix D and E for additional details).



- Where possible minimise usage complexity caused by things like media switching and having to search for various resources on the curriculum, which tends to increase cognitive overhead for students and associated increases in perceived workload
- Design for constructive alignment between learning outcomes, assessment and learning activities and materials where each element clearly links to and builds on the other elements
- Ensure that skills development is well-integrated and contextual to the rest of the materials

Collaborative

Meaningful student collaboration and communication helps students in engaging in deep learning and making concepts and ideas their own (e.g., Garrison et al., 2001; Johnson & Johnson, 1999). It also serves as a mechanism for social support where students feel part of an active academic community of learners (see Tinto, 1975) which makes it more likely that they are retained. Where collaborative activities are well integrated with the study aims of a piece of curriculum and are effectively structured to aid the collaborative process, many students tend to enjoy opportunities to work together with others. However, it is also important to recognise that some students dislike having to collaborate with other students and study with the OU purely because they want to study on their own without input from others. Nonetheless, although not all students want to engage in collaboration, research by IET has found a correlation between the amount of collaborative activity and student completion and pass on modules (see Appendix A and B for additional details).

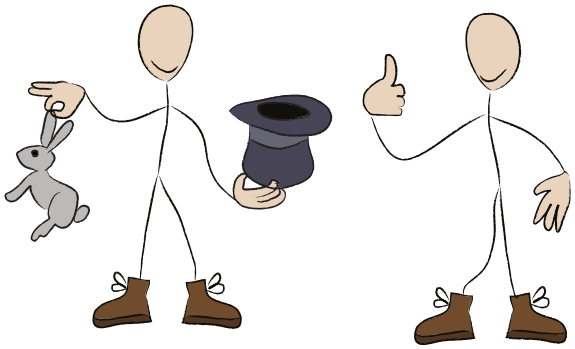


- Where appropriate, incorporate meaningful opportunities for collaboration between students and build the skills and confidence to engage in such collaboration
- Facilitate the development of a supportive community of learners by setting clear ground rules and encouraging student participation in communicative activities
- Ensure that collaborative activities are well-structured and avoid potential frustration of students due to others not participating or studying at different paces

Engaging

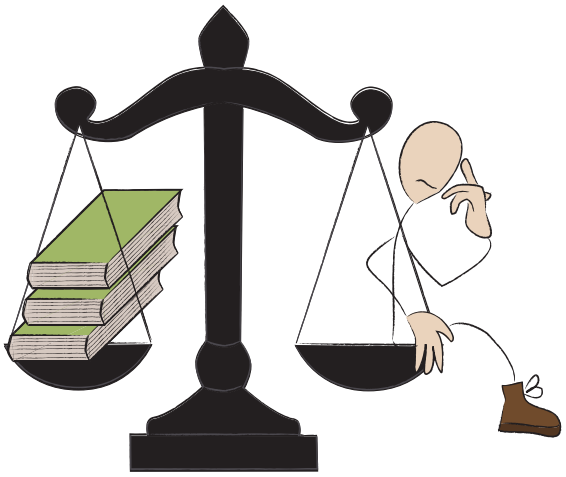
An engaging curriculum draws students in and keeps them interested, challenged and enthusiastic about their learning journey. Where the curriculum matches student interests and aligns with their educational and career aspirations, students are more likely to be retained. Using relevant case studies and readings and keeping these up-to-date as well as including a variety of different types of activities contribute to an engaging curriculum (see Appendix D and E for additional details).

- Build in a variety of different types of activities to keep students engaged
- Make the academic team visible to students and give them the sense of connection with the academic voice behind the curriculum
- Make sure that learning materials and activities are aligned with students' educational and career aspirations
- Ensure that the tone of the curriculum is enthusiastic, engaging and positive and supportive of the idea of students as self-directed, autonomous learners



Balanced

Balanced in this context refers to the workload that students face when studying the curriculum and the extent that this workload is well-paced and evenly distributed. Research has pointed out a negative correlation between average weekly workload and student outcomes, including satisfaction and pass rates, making it particularly important that we don't overload students whilst keeping the workload appropriate for the level of study. Also, where there is an unevenly distributed workload between different study weeks, a negative impact on student outcomes has been found (see Appendix D for additional details).



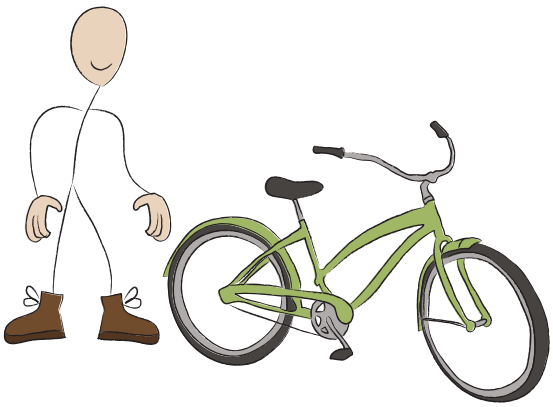
- Ensure that the workload in each week is manageable for students
- Keep the workload distribution even across the study pathway
- Build in effective study skills development like planning and organisation skills
- Ensure that students know on a week-by-week basis exactly what they are expected to do

Economical

Economical refers to the extent to which a module or qualification is efficient in delivering the learning outcomes without providing too much additional material which is not key to achieving the defined learning outcomes.

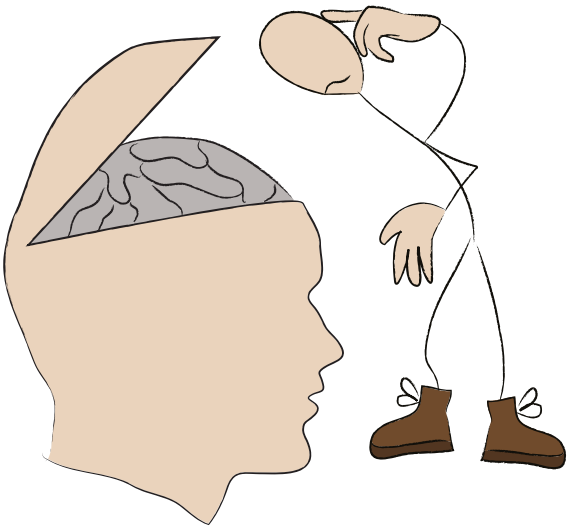
There might be a temptation to provide students with an overwhelming array of interesting facts, ideas, theories and concepts in a given subject area. However, students are guided in their studies by what is relevant for their learning and career aims as well as what they are assessed on. Providing students with a clear critical path which delivers the required learning aims without unnecessary digressions will make it more likely for them to be retained. Making it clear to students exactly what they will learn and providing them with a clear set of learning activities and learning documents that enable them to achieve the required learning aims will contribute to students' success (see Appendix D for additional details).

- Effectively prioritise the key concepts and outcomes that the students need to achieve
- Make sure that what we write is clearly linked to the learning and assessment aims
- Ensure that we don't overwhelm students with a plethora of interesting facts, activities and case studies where these do not add to achieving the key learning outcomes



Reflective

For students to effectively pass a module and engage in deep learning, it is important that they are able to reflect on their learning and study progress and have the time and space to do so. Module materials that continually reflect back to the student what they are learning and how this learning helps them develop the knowledge and skills helps to place content in the broader context of their study. This includes regular opportunities for students to test their understanding through, for instance, self-assessment questions, formative quizzes and iCMAs. Such opportunities for reflection and feedback help keep students engaged with the curriculum and makes it more likely for them to be retained (see Appendix D and E for additional details).

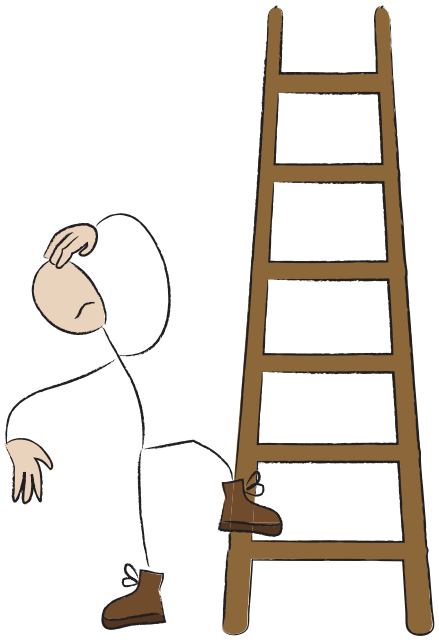


- Incorporate regular summaries in the learning journey
- Integrate formative and self-assessment opportunities into the curriculum
- Build in sufficient time for revision and reflection before assessment points
- Build in time and space for student reflection and self-directed learning

Gradual

In an effective learning journey, students will gradually encounter increasingly complex and challenging concepts, ideas, materials, tasks and skills development. Throwing students in at the deep end can result in students struggling to keep up. However, where knowledge, skills and assessments all occur over a manageable gradient which builds on what students already know, provides timely opportunities to learn and practice study skills and prepares them achieving the defined learning outcomes, it is more likely that students will not be overwhelmed and, therefore, more likely be retained (see Appendix D for additional details).

- Ensure students gradually encounter increasingly complex tasks
- Ensure that the assessment strategy and module learning tasks gradually builds up confidence and skills for assessment
- Provide scaffolding which prepares students for the current and next level of study
- Enable students to progress from directed to more independent and self-directed forms of learning



Key action tips for designing for student retention

In addition to the seven key design principles outlined above, this section provides ten action tips on how to effectively design for retention.

1. **Engage students early on in the module and make sure that the first few weeks of study materials draw students in**
   The first two weeks of study are of key importance in supporting student retention, as dropout tends to be highest during this time. By ensuring that the early parts of a module are especially engaging, relevant and inviting we make it less likely that students drop out. It is also especially important to keep the workload manageable in the first couple of weeks and to ensure that the module starts with the more straightforward concepts and ideas rather than throwing students in at the deep end.

2. **Look for potential retention blackspots and address these as far as possible**
   Each module is likely to have particular hurdles or challenges that students need to get through to complete the module. Make sure that you assess and evaluate such potential hurdles and put in place support mechanisms to help students through these. Such hurdles can be particularly challenging threshold concepts, collaborative activities, difficult software tasks etc. Discussing key strategies for helping students navigate such retention blackspots with module colleagues and preparing materials and briefings for ALs to support students at these times should result in effective ways of supporting students to cope with these. Identifying and addressing retention blackspots should be done as early as possible in the design process and a module team meeting specifically aimed at doing this is recommended.

3. **Monitor workload during production and conduct a final workload check before handing over to LTS**
   Workload has been found to be a key influence on student completion and retention. It is important that the workload is not only manageable but also evenly paced throughout a module to ensure students know what to expect on a week-to-week basis so that they can plan their study activities accordingly. Make sure that authors have clear workload guidance for each part of the curriculum they are designing. This is a key step towards ensuring the workload is manageable and evenly distributed, as is the effective use of workload monitoring throughout production, using for instance the online Student Workload Planner available on the online Learning Design Tools.

4. **Make sure all materials, resources and media are easy to access by students and minimise usage complexity**
   A smooth student journey is a key element supporting student retention. Make sure that all materials and resources are easy to find and presented in a consistent place throughout a programme of study. Wherever possible minimise usage complexity resulting from students having to switch between different resources and media and where possible try to allow students – especially those who study away from the home office - maximum freedom to choose how and when to study. Often this is not possible until the final module is prepared in the VLE, so a final check to ensure that it looks coherent as a whole is encouraged.

5. **Effectively break modules up in shorter chunks and explore ways of rewarding students for completing each**
   Research on MOOCs and other curriculums has pointed out that structuring materials in smaller chunks

and building in reward mechanisms for completing these chunks has a positive effect on student retention. Giving students a sense of achievement and regular reward may help motivate and retain some students. Quizzes, positive feedback experiences, recognition from peers and digital badges are examples of possible mechanisms for achieving this.

6. **Build in sufficient opportunities for self-assessment and formative assessment**
Self- and formative assessment are not only generally liked by students, they also offer great opportunities for monitoring and consolidating student learning. By building in regular opportunities for self- and formative assessment using, for instance, Self-Assessment Questions, quizzes and formative iCMAs will help build student engagement and assessment confidence.

7. **Make assessment relevant, interesting, challenging and perhaps even fun**
Assessment forms a key part of the student experience of OU study. By making sure that this important element is authentic and relevant to students' motivations and interests, sufficiently challenging without putting students off and where possible adding an element of fun to assessment can help retain students on modules and qualifications. It is also important that assessment does not pose any unexpected surprises for students and that they are sufficiently prepared for assessment tasks throughout the module and qualification. After completing the assessment ask yourself whether a student would say "that was rewarding".

8. **Make sure the study planner is broken up on a week-by-week basis**
Some modules in the past have broken down the study planner in blocks or multi-week chunks. Such a breakdown makes it difficult for students to know where they are expected to be at any point in time and makes it more difficult for them to schedule their study activities. A week-by-week study planner makes these aspects much easier for students and leads to lower perceptions of the workload involved in study.

9. **Build study, revision and assessment skills throughout the module and qualification**
Especially at the start of their OU journey, students cannot be expected to have all the skills and attitudes required for effective study. It is important to keep building study, revision and assessment skills throughout each module and provide scaffolding for students to prepare them for the next level of study.

10. **Build in sufficient reflection and revision time to enable students to consolidate their learning and prepare for assessments**
The OU Student Experience of Feedback, Assessment and Revision (SEFAR) Survey found that just 47.6% of students taking exams felt that enough time had been allocated to revision (Cross et al., 2015). Analysis of open comments confirms this. When preparing for exams or EMAs, it is important for students to have sufficient time to prepare and revise in order to do well on a final assessment. Such time for reflection and consolidation would ideally be built in throughout a module.

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Introduction to the Appendices

The following five appendices summarise some of the evidence on which this report is based. They represent the work streams of the Designing for Student Retention Project. Appendix A provides a review of the external literature on student retention. Appendix B provides an overview of the lessons for the OU of the external literature review. Appendix C provides an overview of the internal projects which were reviewed as part of the Designing for Student Retention Project. Appendix D provides a summary of the interviews with experienced Module Team Chairs. Finally, Appendix E provides a brief summary of the SEaM Open Comments Analysis.

Appendix A

Literature Review

Student retention: terminology and definitions

Terminology in the literature on student retention varies, and whereas the European literature mostly uses the term "retention", North American authors tend to refer to this concept as "persistence". Its polar opposite appears equally often in studies and is variably referred to as "dropout", "attrition" or "withdrawal".

Student retention and dropout have received considerable attention in the literature yet a consistent definition of these concepts is largely absent. A literature review by Lee and Choi (2011), based on an examination of 35 empirical studies, noted that 37% of the reviewed studies did not provide a clear definition of dropout and the remaining studies adopted divergent definitions. Some definitions focussed on voluntary withdrawal of students, others on non-completion of modules or programmes of study, yet others on a failure to complete a module with a certain grade or a failure to register on a further module or semester.

Tresman (2002) made similar observations and noted that student retention is problematic in terms of both its definition and connotation. Tresman noted that retention involves students not completing courses or programmes of study, but can also refer to enrolling but not starting a course, withdrawing formally once study has commenced, ending participation in study, engaging with study but failing to reach a particular threshold, or transferring to another course or institution.

Tinto (1975) pointed out that research on dropout often fails to distinguish between different types of dropout such as dropout resulting from voluntary withdrawal, dropout that is the result of academic failure, dropout which is temporary in nature or dropout which results from students transferring to alternative providers of higher education. Although these are all classed as dropout, the underlying processes and explanations vary significantly and a failure to differentiate between these not only makes comparisons between studies difficult, it also contributes to conflicting research outcomes.

Student Retention in a distance education context

Various authors have observed that student retention is lower for online modules when compared to modules utilising traditional methods of delivery (Hilz, 1997; Dutton, Dutton & Perry, 1999; Terry, 2001). In a study comparing an online and a campus-based version of the same computer programming course, Dutton et al. (1999) found that online students showed a 72.2% completion rate whereas the campus-based course saw a completion rate of 90.3%. In a similar comparison at the programme level, Simpson (2013) observes that in a programme that has both a distance and a face-to-face version, graduation rates for the distance version are around one quarter of the graduation rates for the face-to-face version.

Simpson (2013) speaks of a "distance education deficit" with a large number of distance education institutions having graduation rates less than a quarter of those of traditional face-to-face institutions. Simpson attributes this deficit to the "category error" of confusing teaching with learning. He argues that many distance education institutions have traditionally focussed predominantly on the provision of online teaching materials at the expense of motivating students to learn. He observes that student dropout and retention are the main focus of less than one-fifth of articles published in distance education journals, indicating that this issue is not at the forefront of the literature.

Simpson (2004) argues that some level of dropout is inevitable and beyond the control of institutions of higher education, especially those cases where dropout is directly linked to issues of illness or family crises.

Impact of student dropout

High rates of student dropout in distance education is a concern for educators for a variety of reasons. For students, failing to complete their first online course can adversely impact on their levels of self-confidence and deter them from engaging in further online study (Poelhuber et al., 2008). For institutions of higher education, low student retention implies ineffectiveness of online courses and poor quality (Willging & Johnson, 2009).

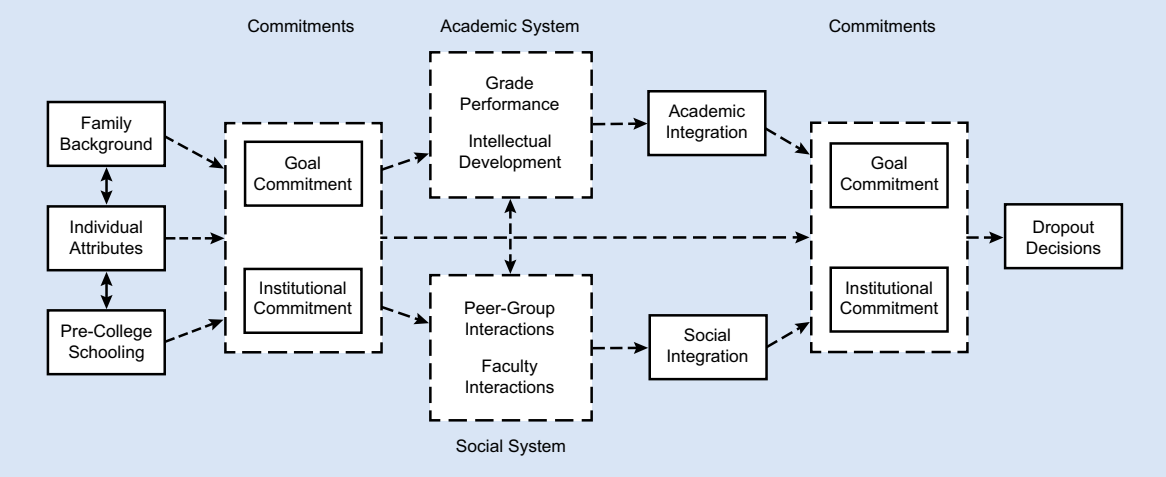
Models of student retention

Tinto's (1975) Student Integration Model

The most commonly cited model of student retention is Tinto's (1975) Student Integration Model. Tinto bases his model on Durkheim's theory of suicide which sees individual suicide as an issue of social integration. Tinto argues that the process of dropping out of a higher education institution characterised by a set of social structures and values is analogous to the process of committing suicide in wider society. The underpinning social conditions leading to dropout are argued to be insufficient social integration and insufficient congruency with the culture and value system of an institution of higher education.

Tinto differentiates between the academic and the social domain of higher education institutions, and argues that dropout results from a failure to properly integrate with either or both of these. A failure to integrate with the academic domain involves issues in aligning with the academic values characteristic of the institution and a failure to achieve the academic standards set by it. Failure to integrate with the social domain involves a lack of alignment with and commitment to the social life of an institution.

Figure 1 below shows Tinto's (1975) Student Integration Model.



Tinto argues that initial levels of commitment to the goal of completing a programme of study (goal commitment) and initial levels of commitment to the particular institution (institutional commitment) are driven by factors related to family background, individual attributes and former education. These input variables are largely outside of the control of institutions of higher education. The subsequent engagement with the academic and social domains of an institution will determine the level of academic integration and social integration, which in turn lead to revised levels of goal commitment and institutional commitment. It is these levels of goal commitment and institutional commitment which ultimately determine decisions to drop out.

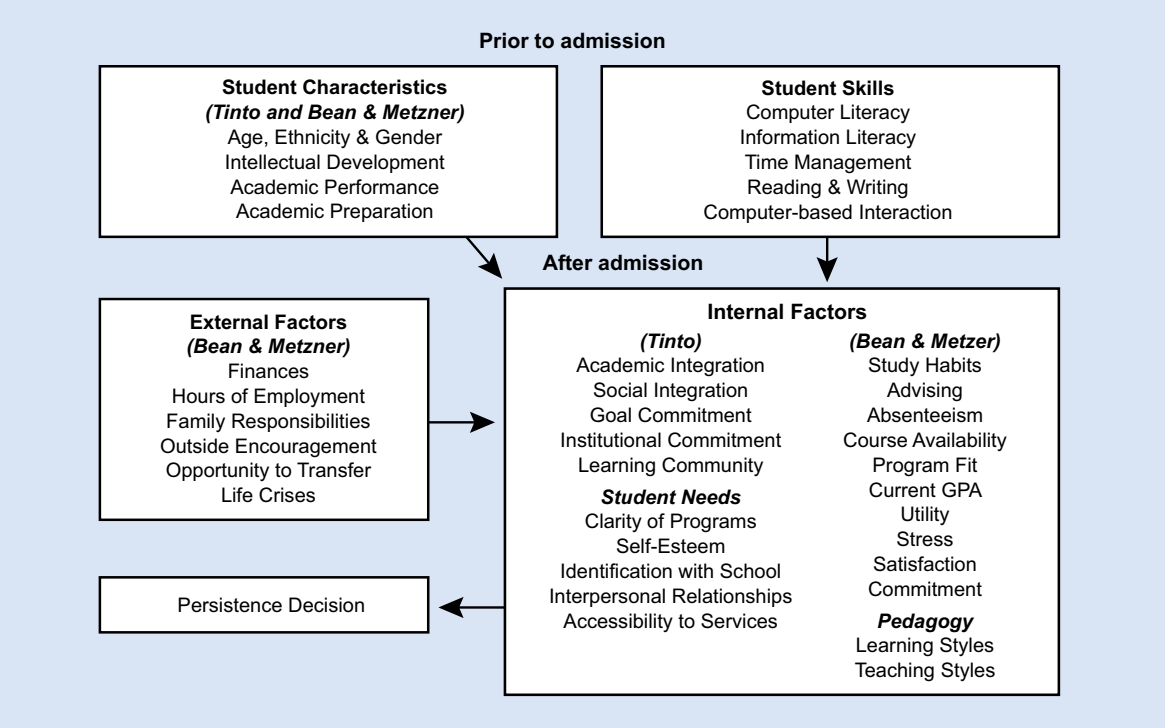
Tinto's model suggests that in order to enhance student retention, a higher education institution needs to be effective at facilitating both the social and the academic integration of students to minimise the likelihood of students deciding to withdraw.

Rovai's (2003) Composite Persistence Model

Rovai (2003), building on the Tinto's (1975) Student Integration Model and Bean and Metzner's (1985) Student Attrition Model, proposes the Composite Persistence Model which aims to specifically address retention in the context of distance education. Rovai argues that distance education students are qualitatively different from face-to-face students in a number of respects which need to be taken into account when trying to understand student retention in a distance education context.

Rovai describes distance education students as non-traditional students who tend to be over 24 years of age and often have job and family responsibilities which can interfere with effective attainment of study goals. He argues that for these non-traditional students, the academic and social integration emphasised in Tinto's model are perhaps less important, whereas other external factors important for non-traditional students are ignored in Tinto's model. Such external factors include family and work responsibilities and support structures outside of the higher education institution.

Figure 2 below shows Rovai's Composite Persistence Model.

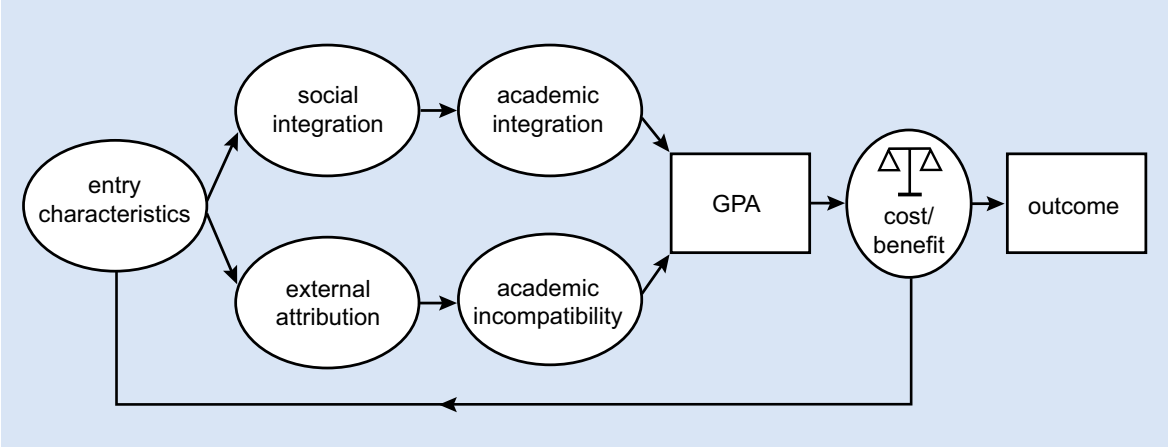


Rovai's model differentiates between relevant factors prior to admission and relevant factors after admission which influence a students' decision on whether to persist or withdraw from study. Relevant factors prior to admission are divided into student characteristics and student skills, whilst factors after admission are divided into external factors and internal factors.

Kember's (1995) model of dropout in distance education

Kember (1995) developed a model of student progress in distance education and like Rovai based his work on Tinto's Student Integration Model. Kember argues that students can follow one of two pathways which lead to either continuing study or dropout. The first pathway involves students successfully integrating in the social domain of an institution. This is followed by effective integration in the academic domain through an acceptance of and adherence to the academic norms and values of an institution. The alternative pathway involves external attribution followed by academic incompatibility. Kember argues that less successful students who fail at effectively integrating academic demands with social and other demands on their time, often attribute their failure to integrate to external factors beyond their control, which tend to be followed by academic incompatibility (see Figure 3). A failure to integrate academically and other demands is more likely for distance education students due to the fact that they often have to juggle family and work responsibilities along with study.

Figure 3 – Kember's (1995) model of student progress in distance education



The respective pathway a student takes will determine their GPA based on which students will conduct a cost-benefit judgement on whether continued investment of time and effort is beneficial and as a result decide to continue study or drop out.

Institutional attitudes towards student retention

Johnston and Simpson (2006) argue that higher education institutions' attitudes towards retention are essentially ambivalent. They observe that efforts to increase retention can be construed as lowering academic standards and thereby institutional status. They draw on the work of Anderson (2003) who differentiates between "survivalist" and "remedialist" institutions as holding contrasting attitudes towards student retention, which are reflected in their admission and support policies and practices. "Survivalist" institutions' admissions policies focus on admitting those students who are most likely to succeed, with a subsequent "hands off" approach to student support.

In contrast, the focus of "remedialist" institutions' lies on stimulating demand through marketing and recruitment with more flexible attitudes towards entry requirements. Student support in such

institutions is largely remedial in nature to ensure that students with lower entry characteristics still have the best chances of success.

Anderson argues that both "survivalist" and "remedialist" institutions adopt an essentially reactive approach to student support where students are expected to be proactive in indicating their support needs to the institution. It is this reactive approach to support which they perceive as a key barrier to enhancing student retention. They pose that those students who are most in need of support tend to be the students who are least likely to ask for it and that, therefore, student self-referral does not work as a method of increasing retention. What is needed according to Anderson is for institutions to move beyond "survivalist" or "remedialist" attitudes and instead adopt a "retentionist" attitude, which focuses on outreach and proactive support to students. Simpson (2003) points to a considerable source of evidence that proactive support models have a positive impact on retention.

Antecedents of student retention

The literature on student retention has found a wide range of factors which are associated with student retention.

In a large-scale study of 8,500 students in 33 colleges, Martinez and Munday (1998) found a number of factors which were associated with higher dropout among students, including where students:

- felt that they hadn't been placed on the most appropriate course
- were late in applying for their course
- had difficulty making friends
- found it difficult to settle in at the beginning of their course
- were less satisfied with the quality of teaching.

Chyung, Winiecki & Fenner (1999) interviewed students (both withdrawals and continuing) on a distance master's programme and found that the main factor which contributed to the decision on whether to continue or withdraw constituted the student's level of satisfaction with the first or second course in the programme. Specific reasons for withdrawal included:

- dissatisfaction with the learning environment
- divergence between professional and personal interest and the structure of the course
- low confidence in distance learning
- hesitations about successfully communicating online
- lack of competence in utilising distance education software
- feeling overwhelmed by the amount of knowledge and information.

Thompson (1997) found that the level of satisfaction of students with the quality of communication with their instructor was one of the key factors that differentiated between students who dropped out and students who continued with their studies. Astleitner (2000) found that not only communication and social interaction between students and instructors but also the level of social interaction between students and peers was an important factor in students' decision to withdraw from an online course. Park et al. (2011) make similar observations and argues that online students face potential feelings of isolation as they do not have conventional opportunities to regularly meet face-to-face with educators and peers. Feelings of isolation puts students at risk of early dropout and regular contact with students, for instance through short motivational messages, as well as meaningful online opportunities for communication and collaboration, can mitigate the risk of isolating students.

Communication between institutions of higher education and students also serves the purpose of building effective relationships. Bruning (2002) argues for the mutually beneficial effects of effective

student-university relationships and its impact on student retention. Where the higher education institution demonstrates trust, openness and commitment in its relationships with students, satisfaction of students will be enhanced with positive knock-on results for student retention. Ivankova and Stick (2007) and Bocchi et al. (2004) found that timely and appropriate faculty feedback to students, involving students in interactive activities and promptly supporting struggling students were associated with higher retention rates.

A study by Glogowska, Young and Lockyer (2007) on the factors impacting on nursing students' withdrawal decisions articulated four "pull" factors which kept students on courses and six "push" factors which contributed to decisions to leave. The pull factors were described as determination, commitment to the profession, informal support mechanisms and formal support mechanisms. The push factors entailed challenges of academic work, the load of other responsibilities, financial strain, lack of effective support mechanisms, early negative experiences and illness or injury.

A qualitative study by Perry et al. (2008) of dropout among online graduate students reported that personal reasons and programme reasons were the most commonly stated reasons for withdrawal. Personal reasons here included life or work commitments whereas programme reasons revolved around whether personal and programme learning styles matched the programme with career goals.

Lee and Choi (2011) conducted a review of the literature on online course dropout, and looked in detail at 35 empirical studies which were published over a 10 year period between 1999 and 2009. They found 65 factors which were associated with dropout on distance education courses. They divided these factors into three categories: student factors, course / programme factors and environment factors. Table 1 below outlines the 65 factors found by Lee and Choi.

Table 1 – factors impacting on student retention on online courses. From Lee and Choi (2011)

Student factors	
Academic background	GPA Previous academic performance SAT math score
Relevant experiences	Educational level Number of previous courses completed online Number of previous distance learning courses Previous experience in the relevant field Involvement in professional activities in relevant field
Skills	Time management skills Underestimation of the time required to balance their academic and professional obligations Ability to juggle roles / balancing multiple responsibilities Strong coping strategies Resilience Relevant prior computer training Computer confidence

Student factors (continued)	
Psychological attributes	Locus of control Motivation Goal commitment Love of learning Self-efficacy Satisfaction
Course / Program factors	
Course design	Team building activities Program quality
Institutional supports	Administrative support Student support infrastructure Orientation Tutorial attendance
Interactions	Inter-student interaction Faculty interaction with students Student participation
Environment factors	
Work commitments	Employment status Work commitments Increased pressure of work Changes in work responsibilities and environments
Supportive environments	Financial aid Support from family, work, friends Emotional Support Supporting environments allowing study time Life circumstances Life challenges Life events

Course design factors indicated in Table 1 are particularly relevant for the purpose of this literature review. Course design in this context pertains to the interactivity, overall quality and the relevance to the needs of students (Lee and Choi, 2011). The level of interactivity draws on a study by Bocchi et al. (2004) which found that collaborative team-building activities had a positive impact on student retention on an online MBA programme. Overall quality was a factor derived from Ivankova and Stick (2007) which reported a higher persistence rate for students who felt that a course

was well-structured and included relevant course content. The relevance to the needs of students as a key factor was reported on by Perry et al. (2008) which found that the relevance of a course to a student's professional aspirations as well as whether it matched their learning style were significant factors predicting student retention on online courses.

As Willging and Johnson (2009) conclude, "…research has shown that the reasons for dropping out of a distance education course or program are complex, multiple and inter-related."

Strategies for enhancing student retention

Numerous studies have looked at ways of improving retention in distance education.

Table 2 below provides an overview of some proactive interventions which have been reported on in the literature along with the impact these have had (from Simpson, 2013).

Study		Method	Finding	Notes
1	Rekkedahl (1982), Norway	Postcards	46% increase in retention	
2	Visser (1990), United Kingdom	Postcards	27% increase in retention	Small-scale study
3	Case and Elliot (1997), United States	Telephone calls	15–20% increase in retention	Between two and five calls most effective
4	Chyung (2001), United States	Telephone calls	Dropout reduced from 44% to 22%	
5	Mager (2003), United States	'Telecounseling'	5% increase in retention	Cost-effective 625% RoI
6	Simpson (2006), United Kingdom	Telephone calls	5.1%	Cost-effective 460% RoI
7	Twyford (2007), Australia	'Motivational emails'	11.7% increase over control	
8	Huett, Kalinowski, Moller, and Huett (2008), United States	'Motivational emails'	23.4% increase over control	Significant at 0.5%
9	Simpson (2013), United Kingdom	Telephone calls plus motivational emails	18.9% increase over control	

Note: RoI, returns on investment. Data from Simpson (2013).

Other studies have focused on factors around the design of modules as opposed to interventions directly targeting students. Park et al. (2011) argues for the importance of learning style and ensuring that course design caters for different learning styles and preferences of students. Or by assessing students' learning styles at the start of a programme of study and subsequently offering options that cater for these different learning styles.

Building on the findings from Reneland and Ahlbäck (2003) that peer support played an important motivational role for students studying online courses, Park et al. (2011) argue for the need to design meaningful social interaction between peers in online programmes of study as a means to support retention.

Lee and Choi (2011) distilled from their literature review a number of design related interventions which could support student retention. These include:

- Provision of collaborative team-based learning opportunities supported by effective faculty feedback and interaction
- Provision of relevant content which matches students' experiences and interests
- Ensuring flexibility and self-directed opportunities in course content
- Encouraging student participation through interesting and interactive course content.

An evaluation study conducted by Avery et al. (2008) drew on the expertise of experienced faculty members to identify a set of quality standards for online nursing courses. These standards were divided into four categories: course mechanics, course organisation, student support and communication and interaction.

Course mechanics involve a clear articulation of learning goals and objectives, requirements and pre-requisites, time commitment and the alignment of learning objectives with activities and assessment.

Course organisation pertains to the effectiveness of navigation, an effective knowledge gradient progressing from easy to more difficult tasks, and the incorporation of diverse learning styles and preferences.

Student support centred on the availability of academic support roles to address student needs, effective support for learning activities and the availability of technical support for students.

Finally, communication and interaction involve both the degree and the robustness for peer-to-peer interaction and interaction with faculty staff, course materials and the course interface.

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Appendix B

Lessons from the external literature review

Introduction

The review of the external literature on student retention has highlighted several design related aspects, which previous research has found to have a positive impact on student retention. Following Tinto's Student Integration Model, these factors can be grouped into factors which enhance student motivation and goal commitment, factors which enhance students' academic integration, and factors which support students' social integration. This report sets out the key lessons learned from the literature review categorised according to these three groups.

Enhancing student motivation and goal commitment

Student motivation and goal commitment have been found to have a positive impact on student retention. More motivated students are more likely to complete a programme of study as compared to less motivated peers. The two factors which have been found to enhance student motivation and goal commitment are the provision of relevant content which matches students' experiences and interests and the use of language which is positive, enthusiastic and inspires interest.

Provision of relevant content

Where the curriculum provides content which students perceive as relevant to their personal and professional context and aspirations, students are more likely to be motivated to continue their studies. Also, where content is linked to existing experiences of students, it will be easier for them to build on their existing knowledge and integrate new insights and concepts. As such, designing materials with student interests and experiences in mind is likely to have a positive impact on student retention.

Use of positive, enthusiastic language

The style and tone of written and AV materials is a key factor which impacts on students motivation to study. Where materials are presented using positive language which inspires interest and enthusiasm, students are more likely to be motivated to continue their studies in comparison to materials which are written in a dry, abstract and uninspiring voice. Positive psychology involves using language which reinforces the concept of students as adult, autonomous and self-directed learners who can take ownership of their own learning journey.

Enhancing students' academic integration

In order for students to be successful and continuing learners, they need to achieve a degree of integration with the academic domain of their university. They should also develop the skills, behaviours and attitudes which are expected from members of the academic community. Higher levels of academic integration and acceptance of the norms, values and performance standards of university life will make it more likely that students continue in their studies. A range of factors have been found to enhance students' academic integration which are described below.

Support the development of effective study habits and skills

For students to develop a degree of integration with the academic aspect of university life, they require the development of a number of relevant study skills and habits which support them in their learning journey. Especially at the start of their academic journey, they need to be supported in developing effective study skills and habits required to progress and develop as effective learners. Key study skills include organisational skills which help students organise their physical and digital study environment, plan engagement with study activities and manage competing priorities on their time and resources.

Time management skills help them in this and enable them to manage their diaries, keep track of study progress and make sure they plan around things like holidays, family time and work engagements. A third important skill involves independent study where students autonomously engage in learning activities to support their academic development and expand their knowledge of their chosen subject area.

Provide a gradual knowledge and skills gradient

Effective integration into the academic domain requires a gradual learning curve where students are not thrown in at the deep end. Making sure that a programme of study starts off with the development of easier skills and knowledge of simple ideas and concepts whilst gradually introducing more challenging content and tasks, is a good way of ensuring that students are more likely to keep up and have a smooth journey integrating into the academic domain.

Provide effective ICT and DIL skills development

Especially in the context of distance education it is important that students develop effective ICT and Digital Information Literacy (DIL) skills to support their studies. Students new to OU study are likely to struggle with effective use of the online Virtual Learning Environment and navigating the multitude of resources at their disposal. Making sure that ICT and DIL skills development are embedded in the core curriculum, especially at lower levels of study, makes it more likely that students become successful online learners who don't drop out of study.

Clear articulation of learning aims and alignment with activities and assessment

Making sure that learning aims and outcomes are clearly articulated helps ensure that students are aware of the knowledge, skills and attitudes which will be developed on a programme of study and makes it easier for them to monitor their progress and development, which in turn makes the journey towards academic integration easier. Not only do the learning aims need to be clearly articulated and relevant to students' experiences and interests, it is also important that there is constructive alignment between learning aims, activities that support the development towards achieving these, and assessment which effectively evaluates progress towards these. When all these aspects are in place, student integration with the academic domain will be more effectively developed with a positive impact on student retention.

Effectively communicate requirements, pre-requisites and time commitment

Managing student expectations effectively is a key element contributing to effective integration with the academic domain. Making sure that students are aware of the requirements, pre-requisites and time commitments involved in study makes it easier for them to make informed decisions about their study and address any issues which might adversely impact on their study progress. Communication of requirements, pre-requisites and time commitment needs to occur both prior to and throughout a programme of study and at different granularities ranging from the full programme of study to the individual activities a student is asked to engage with.

Incorporate activities which align with different learning styles and preferences

Students come to a programme of study with a wide variety of learning styles and preferences which are associated with different strengths and weaknesses when it comes to study. Making sure that the curriculum caters for a variety of learning styles and preferences will mean that different students feel engaged with their studies and that they are able to build on their study skill strengths. Incorporating such variety means that students with different styles and preferences all have an opportunity to integrate effectively with the academic domain and as a result will be less likely to drop out.

Ensure effective and smooth navigation through the student journey

Challenges related to study should be associated with the subject matter and not the learning journey in itself. Ineffective navigation which makes it difficult for students to know what they're meant to be doing and when will likely leave them frustrated and struggling to develop the academic integration required to become effective students. Making sure that the student navigation through the module is smooth and without unnecessary speed bumps, ensuring that students have clarity on what they're required to do and when will make it more likely that they will be retained on a programme of study.

Enhancing students' social integration

For students to remain active and engaged with their programme of study, it is important that they can draw on the emotional support of a community of learners and educators with whom they share their learning journey. Integration with the social domain of an institution means that students will build effective relationships with their peers and staff and are able to overcome issues related to their studies. This section outlines three key strategies for enhancing students' integration with the social domain of the university.

Support effective online communication skills development

Without the necessary skills for effective online communication, students will struggle to build the kind of effective relationships with their peers and educators that are required to integrate into the social domain of the university. This could leave them feeling isolated and putting them at risk of dropping out. Incorporating activities into the curriculum which help students build effective online communication skills will make it easier for them to find emotional and study support from their peers, preventing them from feeling isolated.

Provide collaborative team-based learning opportunities

Integration with the social domain of a university does not happen in a vacuum and ensuring that there are plenty of opportunities for meaningful interaction with peers and educators will make it more likely that students are effectively integrated into the social domain. Particularly where students have to work as part of a team with a set of shared learning aims are they more likely to develop effective skills for collaboration, while at the same time building supportive relationships which help keep them on track on their learning journey.

Maximise opportunities for student-student and student-staff interaction

For effective integration with the social domain, a supportive learning community plays an important role and maximising the opportunities available for interaction with peers and educators means that students do not have to feel isolated in their studies. Opportunities need to be provided for students to ask questions of each other and educators, to seek emotional and technical support for their studies and to feed back on their experiences as students to help staff evaluate the curriculum and make improvements that enhance the student journey.

Summary

Figure 1 overleaf shows a summary of the key strategies for enhancing student retention set out in this paper.

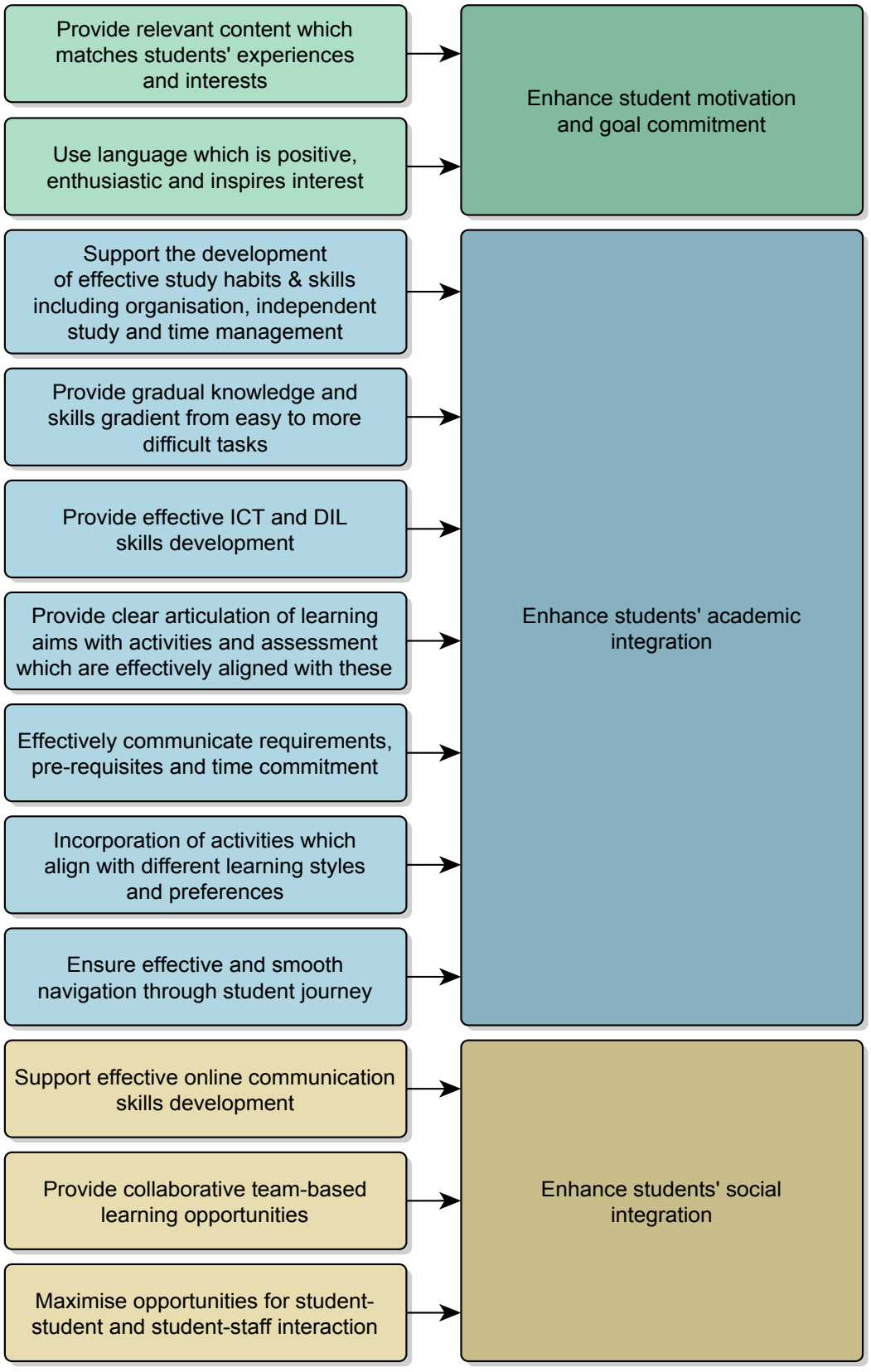

Figure 1 – overview of strategies for enhancing student retention

Appendix C

Internal retention related reports reviewed

Project / report	Faculty	Focus	Design aspects / findings / recommendations
SDK125 Student Intentions and Retention Study for eSTEeM	HSC	Evaluating the validity of common suppositions about what makes so many students withdraw "early" from SDK125	* 10% of students surveyed stated they were not made aware of workload before registration * OU needs to do better in getting study time requirements across to students * Exam anxiety was not identified by interviewed students as a factor in early disengagement * Some evidence of early introduction of maths and science as possible reason for early disengagement * Between 10-15% of students were not at all confident about ability to acquire required IT skills for study * Active and timely engagement from tutor identified as valuable * Workload of about 8 hrs/wk found to be manageable by students *Access to internet / IT a big issue for small proportion of students * Late contributions of other students to TGF activities frustrating for students wanting to progress
An investigation into the relationship between Online Tutor Group Forum Use and Student Retention	FELS	Investigating the relationship between TGF use and student retention	* The study reports a moderately positive relationship between TGF activity and student retention * The study found a positive correlation between the number of tutor posts and the number of student posts

Project / report	Faculty	Focus	Design aspects / findings / recommendations
Are examinations an accurate measure of student performance? A rationale for more innovative assessment methods within Open University modules	FELS	Investigating the difference in student scores associated with EMAs versus Exams	* In comparing two sport and fitness modules with EMAs and one module with an Exam, it was found that there was a significant gap of almost a full grade band between OCAS and OES for the module with an exam * Quotes several research findings covering the benefits of assessed course work over an Exam
Stemming the flow: improving retention	FBL	Exploring key data sets to support the work of a pilot student support team in determining and establishing those interventions thought most likely to support the student through their student journey and optimise their chances of completion	*In comparing online-only and mixed models of delivery for the Certificate in Management, completion rates were typically 6% lower, pass rates up to 10% lower and student satisfaction also lower *A range of SST interventions, including contact with at risk students during key points of the module, reduced the completion gap between online-only and mixed modes of delivery

Project / report	Faculty	Focus	Design aspects / findings / recommendations
Using online classrooms and skills training to increase retention and pass rates	FBL	Exploring the use of OU Live and Skills Training to enhance retention and pass	*Use of OU Live and Skill Training were found to enhance retention and pass rates on level 2 Law module
Whither distance learning? Institutional innovation and competition in business and management higher education: Retention and Attainment	FBL	Exploratory analysis of a large sample of students in terms of engagement, retention and successful completion with respect to a multi-dimensional student support and assessment framework at the OU	* Literature review highlights the importance of sufficient feedback, timely feedback, feedback provided in a way that students have to engage with it and feedback that can be acted upon in future learning
Online instantaneous and targeted feedback for remote learners	Science	Study of the use of instantaneous automated feedback system as a form of formative assessment on a "Maths for Science" short course	* Literature review highlights the importance of sufficient feedback, timely feedback, feedback provided in a way that students have to engage with it and feedback that can be acted upon in future learning

Project / report	Faculty	Focus	Design aspects / findings / recommendations
iCMAs for formative assessment in beginners' languages modules	FELS	Investigation of students' experiences of using iCMAs for formative assessment in level 1 language modules	* Students claim to enjoy iCMAs and to use them to check on knowledge and highlight areas of weakness; the small number of students interviewed also highlighted the motivating effect of receiving immediate feedback * In designing iCMAs, allow two attempts, and provide one brief hint after one incorrect attempt. After the second incorrect attempt, provide the correct answer and the final feedback. * Final feedback has to be relevant and specific ('revise Unit 2' is too vague). Where possible, refer to specific parts of the materials, as in 'Revise the present tense in Unit 3, Section 3, Activity 3.4.1'. * A correlation was found between late submission of iCMAs and poor overall performance on the module
Using online classrooms and skills training to increase grades, retention and pass rates on a level 2 law module	FBL	Investigation of the impact of online classrooms and skills training sessions (OU Live) to increase grades, retention and pass rates on a level 2 law module	* Students in the tutor group which provided pre-recorded skills training sessions and additional live session had OCAS and OES results which were on average 10% higher than the average for the cohort and the pass rates for this tutor group were 9% higher than the average

Project / report	Faculty	Focus	Design aspects / findings / recommendations
Thresholded assessment: Does it work? Report on an eSTEeM project	Science	An investigation of the relative merits of summative, purely formative and threshold formative assessment in terms of student success and retention	* Students have been seen to engage considerably more and more deeply with formative iCMAs when they have thresholds and hard cut-off dates
F61 MBA Student Retention and Progression Project (initial report 2012)	FBL	A study of student retention on the MBA programme looking mostly at quantitative data captured about student retention, progression and engagement	Findings and recommendations mostly focus on student interventions, changes to policies and procedures for student support, and changes to systems. A few recommendations focus on design: * Bringing forward the first workshop to reduce dropout in initial stages of the module * Programme induction to include information, advice and guidance relating to the importance of using TGF * MBA induction to include guidance relating to online workshop provision to manage expectations * Provision of upfront information around implications of withdrawal, progression and retention to be supplied to students

Project / report	Faculty	Focus	Design aspects / findings / recommendations
L192 Retention Project	FELS	A study of withdrawal reasons from the module which could be directly linked to study materials and module support	Issues identified by students included: * The complexity of the blended learning model * The pace and amount of learning * A preference for print over online materials * A preference for structured linear activities mapped out in books
HSC Report on Retention - August 2011 - Region 9	HSC	An exploration of retention on a number of HSC modules with the aim of identifying tutor strategies for promoting student retention	The study did not find any particular tutors with consistently higher retention rates than others. Their literature review suggests some strategies which could be contributed to through design: * Reinforcing a sense of belonging * Supporting motivation * Supporting the student journey
MCT Level 1 Retention Review Project	MCT	A review of the factors which may affect retention at Level 1 modules in MCT	* Some students appear not to have sufficient IT skills to make the best use of the online environment * Workload may be considered high by some students on some modules * The importance of incorporating development of online skills in induction and the overall study experience * Attention to be given to first TMAs, i.e., early in module, easier than subsequent TMA and marked and returned as quickly as possible * Student 'engagement activities' such as module wide tutorials, and forum activities need to be recognised and supported as elements just as important as the study material itself in any developments in learning design

Project / report	Faculty	Focus	Design aspects / findings / recommendations
Taught Postgraduate Satisfaction with Contact Time	OU-wide	An investigation of student satisfaction with taught postgraduate contact time	* Students who agree there is sufficient contact time to support effective learning are much more likely to be satisfied with the overall experience of their postgraduate programme, than those who do not think there is sufficient contact time. * Satisfaction with contact time is linked to feeling supported, establishing a rapport with tutors, feeling part of the University community, and the perception of value for money. * Findings highlight the importance of quality in the perception of quantity. Increasing satisfaction with contact time is, therefore, not simply a case of offering more staff-student contact hours but about: - improving the quality of staff-student interactions and helping students get the most out of the contact time available - managing expectations through increased consistency and transparency - enhancing students' personal connection with the University.

Project / report	Faculty	Focus	Design aspects / findings / recommendations
SEFAR	IET	Student Experience of Feedback, Assessment and Revision	* Recommendation 3. Modules should aim to provide an adequate revision space between the final module assessment and the examination. A frequent complaint was that TMAs, iCMAs, etc. took place too close to the examination. * Survey Finding 2.3.1. 'Module teams frequently do not allocate enough time for revision. Just 47.6% of students said that there had been enough time allocated in the module for revising. This indicates that revision could be an as yet 'unseen' workload issue on many modules.' * Interview finding 3.2.17. '[Student suggestion]: Do not have TMA submission dates, group work activities, or new reading close to the exam: several students mentioned the difficulties encountered when TMA or iCMA assessments were due close to final examination:..' * SEFAR also found that 89.4% of students felt TMA questions were well aligned with the content of the unit or module which may give an idea of the size of group represented in the SEaM comment analysis that related to Alignment between materials and assessment.

Appendix D

Interviews summary

A total of twelve interviews were conducted with experienced module team chairs (MTCs). The interviews focused on eliciting the design-related factors which the MTCs perceived as enhancing and inhibiting student retention on modules and qualifications. Cognitive maps were created for each interview and a summary cognitive map is reproduced in this report. Based on the map, key themes have been derived and are presented here.

Effective engagement of students

One of the most mentioned design elements involved effective engagement of students through the design of the materials and activities. A number of strategies were mentioned for effectively engaging students on their learning journey.

Firstly, effective student engagement was seen as being facilitated through interesting and relevant materials which link directly to students' educational and career aspirations and provide them with the necessary skills and knowledge which will help them in their daily lives. Context was seen as an important factor here in terms of ensuring that materials and activities are presented in a relevant context which students can relate to. This for instance involves linking skills development activities to relevant case studies or other contextual materials. It was also seen as important that materials are authoritative and up-to-date, and for activities and SAQs to be meaningful and supportive of student learning of the key points.

Secondly, student engagement can be achieved through promoting a sense of achievement and progression throughout a students' learning journey. This involves building in regular opportunities for feedback and advice but also to regularly summarise what students have learned. It was also seen as important to ensure that high-performing students are challenged but that struggling students are not left behind, thus requiring effective balance between going further and remedial activities.

Thirdly, the use of positive, engaging and accessible language was perceived as a means to support student engagement. When materials are presented in a dry, matter-of-fact way students are less likely to feel interested and involved than when materials are presented in an enthusiastic and positive voice which reinforces the concept of students as self-directed, autonomous learners.

Fourthly, student engagement can be enhanced by building in variety in terms of activities, subject matter and media and to ensure that different learning styles are catered for. There should also be an effective balance between theory, skills development and practice.

Fifthly, the facilitation of an effective and supportive student community was seen as enhancing student engagement. Although not all students like engaging in social and collaborative activities, having opportunities for mutual support and sharing of ideas is likely to build a network of learners who are more committed to their learning journey.

Effective assessment practice

Effective assessment design was another factor considered important for supporting student retention. It was felt that effective assessment is straightforward,transparent and does not present students with any surprises. It was considered important to clearly communicate to students what the purpose of assessment is and how it helps facilitate their learning. Another aspect that was mentioned involves the provision of assessment weeks where students do not have to do any additional study tasks, i.e., to not provide directed study in the weeks that they are completing TMAs or EMAs. Some other specific strategies for effective assessment design were mentioned.

Firstly, effective assessment needs to constitute an integrated and coherent aspect of overall module and qualification design. The notion of constructive alignment was mentioned in terms of ensuring that learning outcomes, assessment and activities should all be aligned with one another and supportive of students achieving the overall learning aims of a module or qualification.

Secondly, effective assessment design was perceived as including regular opportunities for formative assessment where students can test and develop their understanding of key concepts. It was mentioned that many students like quizzes and iCMAs and find them helpful, particularly where they get tailored feedback that helps them improve their understanding and subsequent performance.

Thirdly, it was mentioned that effective assessment should be gradual where students are not thrown in at the deep end but instead are exposed to more light-touch assessment at the start of a module or qualification with assessment becoming increasingly complex towards the end of a module or qualification. Building assessment confidence was mentioned as an important aspect of module design especially at lower levels.

Appropriate workload

Another key design related factor which was brought up by a number of interviewees was appropriate student workload. Workload on modules and qualifications should be appropriately balanced and paced to support student retention. Specific strategies for delivering appropriate workload were mentioned.

Firstly, it was considered important to build in time for reflection and catch up. It is the reality of many students that they are regularly behind with their studies and unless there are opportunities for catching up they will struggle and be more likely to drop out. Building in regular reflection and catch-up weeks will ensure that students are able to keep up and gives them time to reflect and consolidate their learning.

Secondly, it was felt that students should have clarity on a week-by-week basis specifying exactly what they are expected to do. By having a clear week-by-week study calendar / planner, students are left in no doubt about where they are expected to be at any point in time, therefore, helping them plan and prioritise their workload.

Thirdly, it was mentioned that student workload should be well-distributed. In other words, it is detrimental to student retention when a module has a very high workload in some weeks and very low workload in other weeks as students are not able to anticipate the amount of work they need to complete from week to week. Ideally, the workload should be relatively constant throughout a module and qualification, with the exception of catch-up and reflection weeks. Also, expectations around student workload should be effectively managed from the outset.

Fourthly, the development of effective time management and prioritisation skills was mentioned as an important factor supporting student retention. Especially at lower levels, it cannot be expected that students have all the skills and habits for managing their workload effectively and these skills need to be gradually built using effective support mechanisms.

Ensuring a seamless student journey

Creating a seamless student journey was a regularly mentioned design aspect which MTCs perceived as enhancing student retention. A seamless student journey minimises the number of obstacles a student faces and ensures that students know what to do and when to do it. Two key factors were perceived as contributing to a seamless student journey.

Firstly, a seamless student journey is facilitated by reducing the usage complexity of our curriculum. This means minimising the amount of media switching where students have to navigate between various on- and off-line resources and activities.

Secondly, a seamless student journey means making the navigation on a module as straightforward as possible and making sure that all resources students have to engage with are easy to find and have a consistent place in the VLE. This also involves ensuring that students know exactly what they are expected to do and when so that they have a clear understanding of the next steps on their study journey and are able to effectively plan and prioritise their efforts.

Creating an incremental knowledge and skills gradient

Another design related element mentioned by the MTCs involves the importance of a gradual study pathway which provides students with easier materials, topics and activities at the start of their journey and gradually builds up towards more challenging and complex materials, topics and activities. Also, there should be more scaffolding at the start of the students' learning journey and gradually less scaffolding later on. Some important factors were mentioned in relation to creating an effective knowledge and skills gradient.

Firstly, there needs to be support for students in developing independent study skills. At the start of their learning journey there should be a strong emphasis on developing independent study skills whereas later on there should be less handholding but effective provision of opportunities for independent study.

Secondly, skills development needs to be a gradual process where students are provided with additional handholding at the start of their module or qualification and for skills to gradually increase in complexity and difficulty. Ideally, skills development is tightly integrated within the context of the module materials where skills are not taught in isolation but are clearly linked to the topics and materials the students are engaging with at the time of developing the skills. It is also important to remember that not all students will bring the same number of skills at the start of their learning journey and that remedial material needs to be provided for skills students might not yet have.

Creating an effective design and production process

An effective design and production process was the final factor mentioned by MTCs as a key factor in supporting student retention. Several factors were mentioned as supporting an effective design and production process.

Firstly, it is important that during the early design stages a comprehensive understanding is developed of who the students will be and who will be studying the module or qualification being designed. A good understanding of the target audience will help tailor the module or qualification to the needs of the likely student population and ensures that the curriculum is fit for purpose from their perspective.

Secondly, an important factor which was mentioned involves the provision of clear workload guidance to module authors so that they have clear expectations of how many hours per week students are expected to study and how these hours should be broken down in terms of different types of activities. Such guidance will minimise the likelihood of overloading students and as such reduce the likelihood of students dropping out.

Thirdly, it was seen as important to discuss the likely hurdles students would face and to have a clear understanding of the threshold concepts students need to engage with. This understanding serves to enable the Module Team to put in place measures to help students overcome the hurdles and to discuss effective strategies for teaching difficult threshold concepts to students.

Fourthly, a useful factor which was mentioned constitutes the involvement of tutors in the development of assessments. With their direct experience of engaging with students and supporting them in successfully completing assessments, tutors bring a useful perspective on the types of assessment and assessment tasks which would help students succeed on their programme of study as well as anticipate likely issues students might face in completing assessment tasks.

Finally, the involvement of non-specialists as critical readers was mentioned as a useful design factor in ensuring that a fresh, layperson's perspective is taken into account when reviewing the materials. Non-specialist critical readers are more likely to represent key features of the student population in terms of their level of understanding of the subject matter and they can provide feedback on the likely hurdles students might face when studying a particular section of the curriculum.

Figure 1 overleaf presents a cognitive map based on collating the individual views of the Module Team Chairs who were interviewed for the Designing for Student Retention Project.

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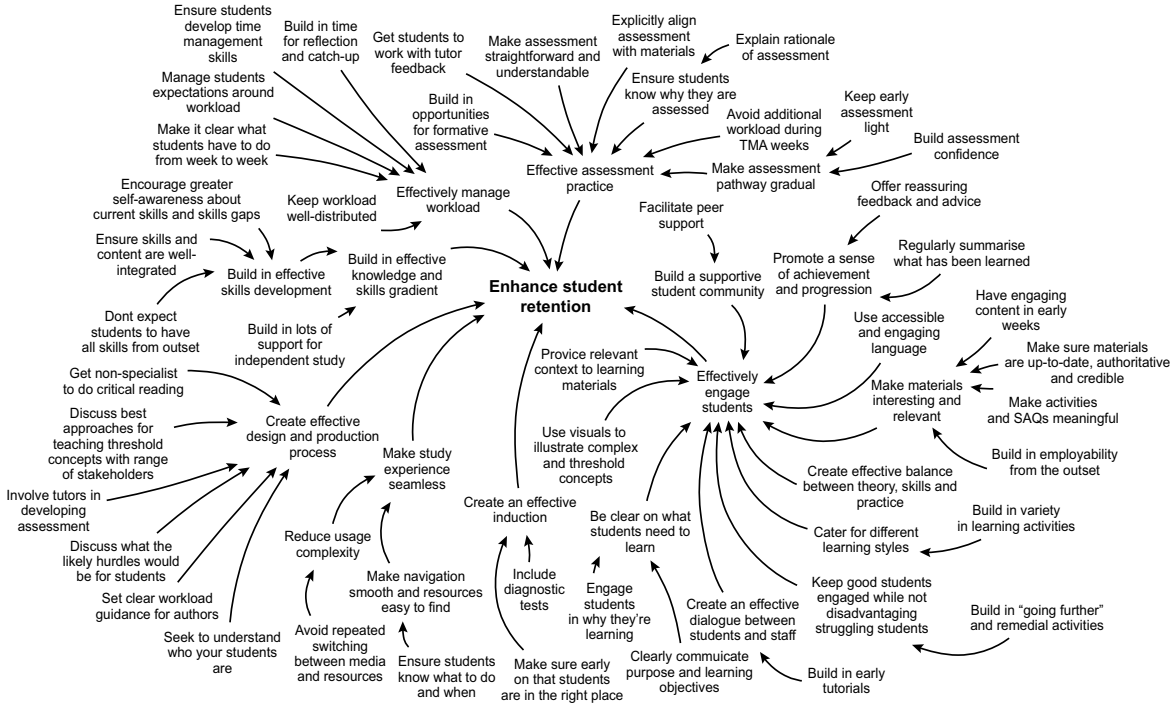

Appendix E

SEaM Open Comments Analysis Summary

The SEaM Open Comments data for six undergraduate modules (two level 1 MCT modules, two level 2 Science modules and two level 2 Social Sciences modules) was analysed to distil design related factors which students comment on in relation to their study experience. A thematic analysis was conducted on a total of 458 student comments to tease out the key themes, which are reported on in this summary.

Out of date materials

In the six modules reviewed, the design related factor most commonly cited by students related to the extent to which the module materials were perceived as up-to-date. Particularly on two of the modules reviewed, students indicated that the materials were significantly out of date which led many students to feel that the modules were poor value for money and reflected poorly on the OU in terms of the authoritativeness of the study materials. Students indicated an expectation of module materials which were up-to-date and recent at the time of study, and feel that study materials, case studies and activities should be based on the most recent findings and developments in a given field.

Engagingly written materials

The second-most commented on design related factor involves the degree to which students perceive the materials to be well-written and engaging. Students on two modules in particular commented on the poor quality of some of the written materials which they perceived to be incomprehensible and opaque in places leading them to feel disengaged and disappointed with their study experience. Some students commented on dry materials or materials which were written in a convoluted or incomprehensible way, making their study journey significantly more difficult. Other students commented on particularly well-written materials which they felt were a pleasure to study and engage with.

Usefulness of having print materials

The third most commonly cited aspect of the curriculum which students mentioned was a preference for print materials and a dissatisfaction with online-only modules. Many students indicated that they want to have the option to be able to study whilst on the move or to be able to annotate and refer back to the materials in hard-copy form. Some students, however, indicated that they liked the online component of study, though most of these still liked to have the materials in print as well.

Alignment between materials and assessment

Another design aspect which students regularly commented on was the degree to which the materials and assessments were in alignment with one another. Where such alignment was in place students commented positively on how the materials helped them prepare for the assignments. Where alignment was perceived as missing, students commented on disjointed assessments and feeling unprepared for these. Students who commented on this aspect expected a clear link between the learning materials, activities and assessments where each builds on the previous element.

Usefulness of SAQs

Numerous students commented on the usefulness of self-assessment questions (SAQs) where these were well-articulated and aligned to the key learning points of the curriculum. Most students who commented on the SAQs felt that these helped consolidate their learning and assess the extent to which they had grasped the module materials. It also helped them go back to areas where they still lacked the necessary understanding and helped them revise for EMAs and exams.

Timing of TMAs and proximity to EMA/Exam

A number of students commented on the timing of TMAs and especially where the final TMA was close to the EMA or Exam students complained about the lack of time to properly prepare for the EMA or Exam and a too narrow window to incorporate the feedback from their final TMA. Some students indicated that the OU does not recognise the amount of time needed for revision and as a result they often felt that they did less well on the final EMA or Exam than they could have done had they had more time allocated to revision and review.

Usefulness of formative assessment

Students regularly commented on the usefulness of formative assessment activities such as iCMAs, quizzes and formative TMAs. They valued the opportunity for feedback and the ability to reflect on how well they had understood the key concepts associated with a module. Formative assessment was often perceived as a helpful learning aid and a way for students to monitor their own progress towards the stated learning outcomes for a module. Students felt that formative assessment was particularly helpful where it clearly aligned with the study materials, activities and summative assessments.

Poorly executed communication/ collaboration activities

A number of students commented on frustration resulting from poorly executed communication and collaboration activities where their progress depended on the contribution of fellow students. Especially where fellow students were behind with their studies and where communication and collaboration activities were assessed did students indicate that these aspects of the curriculum formed an unnecessary impediment to their progress and achievement. This illustrates the importance of well-designed communication and collaboration activities where students are for instance pooled with others at a similar stage in their module.

Variety in activities

Finally, a key design related element which students commented on was the degree of variety in the provision of activities. Where students perceived sufficient variety in types of activities, they mostly commented positively on their study experience. Where such variety was perceived to be lacking, students commented negatively on the repetitive nature of activities and the tediousness of completing them.

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