



The use of data and evidence in retention and progression in Scottish sector higher education institutions

Report

February 2019

Alison Gilmour and Peter Cannell



Contents

Executive summary	1
Why retention is important for HE institutions in Scotland	3
What's happening in the Scottish sector?	5
Key features	5
Metrics and definitions	5
Transitions	6
Enhancement Led Institutional Review	6
Student involvement	7
Institutional drivers	7
Protected Characteristics	7
Widening participation, equality and diversity	8
Student experience and student success	8
The Teaching Excellence Framework	8
Using data to support retention interventions	10
Monitoring retention	10
Developing the use and accessibility of data	10
Strategic use of data	10
Admissions and the first year	11
Data systems	11
Holistic approaches to student retention	12
Evaluation, scholarship and research	12
Professional development	12
Attendance monitoring	13
The nature of interventions	13
Scottish issues and trends in a global context	14
Diversity	15
Scholarship	15
The first year	16
Learning analytics	16
Cross-sector collaboration	18
Ethics and data	18
Systems, sense making and professional development	18
Online and distance learning	19
Communities of practice	19
Conclusions	20
Key observations for reflection within the sector	21
Appendix 1: References and further reading	23
Introduction	23
References	23
Appendix 2: Definitions and terminology	30
Appendix 3: Literature review methodology	31
Appendix 4: Interview schedule	32
Appendix 5: Initial questionnaire	33
Appendix 6: List of Scottish HEIs that participated in project interviews	33

Executive summary

Research undertaken as part of the [current Enhancement Theme](#) was designed to consider how Scottish higher education institutions (HEIs) make use of evidence to inform and evaluate interventions that aim to improve retention and progression. The research comprised two parts. The first entailed desk-based research using publicly available evidence on policy and practice in Scotland. The second involved stakeholder engagement comprising semi-structured interviews aimed at key sector stakeholders targeting staff leading on retention at Scottish HEIs, and the Scottish Funding Council Outcome Agreement team to obtain a cross-sectoral perspective. The stakeholder work also included a short email survey sent to members of the Scottish Higher Education Developers network.

The report will be of interest to staff and students active in higher education (HE) retention initiatives, as well as senior management, policy makers and planners. In the report we present a critical overview of the publicly available literature, identify issues and themes, provide links to examples of practice and resources, and make recommendations for further action. The full report and further reading resources are available on the Enhancement Theme web pages.

The following summarises the main points arising from the research.

1. Student retention is a critical component of strategic success in widening participation for the Scottish higher education (HE) sector.
2. The most significant driver for Scottish HEIs in their engagement with retention work is a concern with the student experience, progression and success.
3. The standard definition of retention in terms of progression from first year to second year has limited use for part-time study or flexible programmes. There is a challenge to find better and more widely recognised metrics to account for student progression and success in these contexts.
4. There are wide variations in retention rates by protected characteristic, between institutions and between disciplines within institutions.
5. Systematic collection and monitoring of retention data takes place across the Scottish sector. Interoperability between different databases is a challenge for many institutions.
6. There is a widespread interest in the use of learning analytics. However, only a small number of HEIs are currently using learning analytics to support retention initiatives. There is active discussion around ethics, purposes and practice.
7. Increased use of learning analytics and big data poses ethical challenges and there is considerable debate about this within institutions and across the sector.
8. The international literature suggests that learning analytics should work hand in hand with pedagogical research. However, high levels of retention-focused activity across the sector are not reflected in published research and scholarship.
9. Retention is a complex, multi-factorial challenge. Describing and monitoring what happens at all levels of the system is relatively straightforward. Understanding underlying causes is a challenge. There is scope for sharing ideas and expertise on these difficult evaluative questions across the sector.
10. There is also a case for sector collaboration on professional development for academic staff in the use of data and evidence in retention interventions.

Four key observations, for reflection within the sector, are proposed:

1. addressing the apparent disconnect between the wealth of retention focused practice, the institutional emphasis on improving data (primarily quantitative) and grounding of this practice in retention pedagogy
2. placing more emphasis on qualitative retention and progression data
3. drawing together more effectively institutional knowledge and expertise to address retention and progression challenges
4. increase research and scholarship that explore the use of teaching practice for good retention.



Why retention is important for HE institutions in Scotland

Sir Peter Scott, Scotland's Commissioner for Fair Access notes in his conclusion to a discussion paper on widening access and retention (CFFA, 2018) that:

Currently SIMD20 [Scottish Index of Multiple Deprivation] students have consistently lower retention rates only partly explained by the fact that they are more likely to attend post-1992 universities (which have lower retention rates overall). Fewer of them are awarded honours degrees. Of those who get honours degrees a lower proportion gains a 'good' degree (a First or a 2:1). And it gets worse. Even those SIMD20 students with 'good' degrees, the same as their more privileged peers,

Scott's paper describes how opportunities to study at higher education level are skewed by socio-economic background; in 2015-16 only 14 per cent of students came from SIMD20 areas. Moreover, opportunities are unequally distributed across Scottish HEIs and outcomes for students from a SIMD background are poorer than for their peers. In 2012-13 the retention rate for SIMD20 students at Scottish universities was 87 per cent, compared with a rate of 91.3 per cent for all students. Figure 1 shows the variation in retention rates for Scottish domiciled undergraduates between 2009 and 2017.

National Measure 5: The number and proportion of full-time first year Scottish-domiciled undergraduate entrants from different protected characteristic groups returning to study in year 2

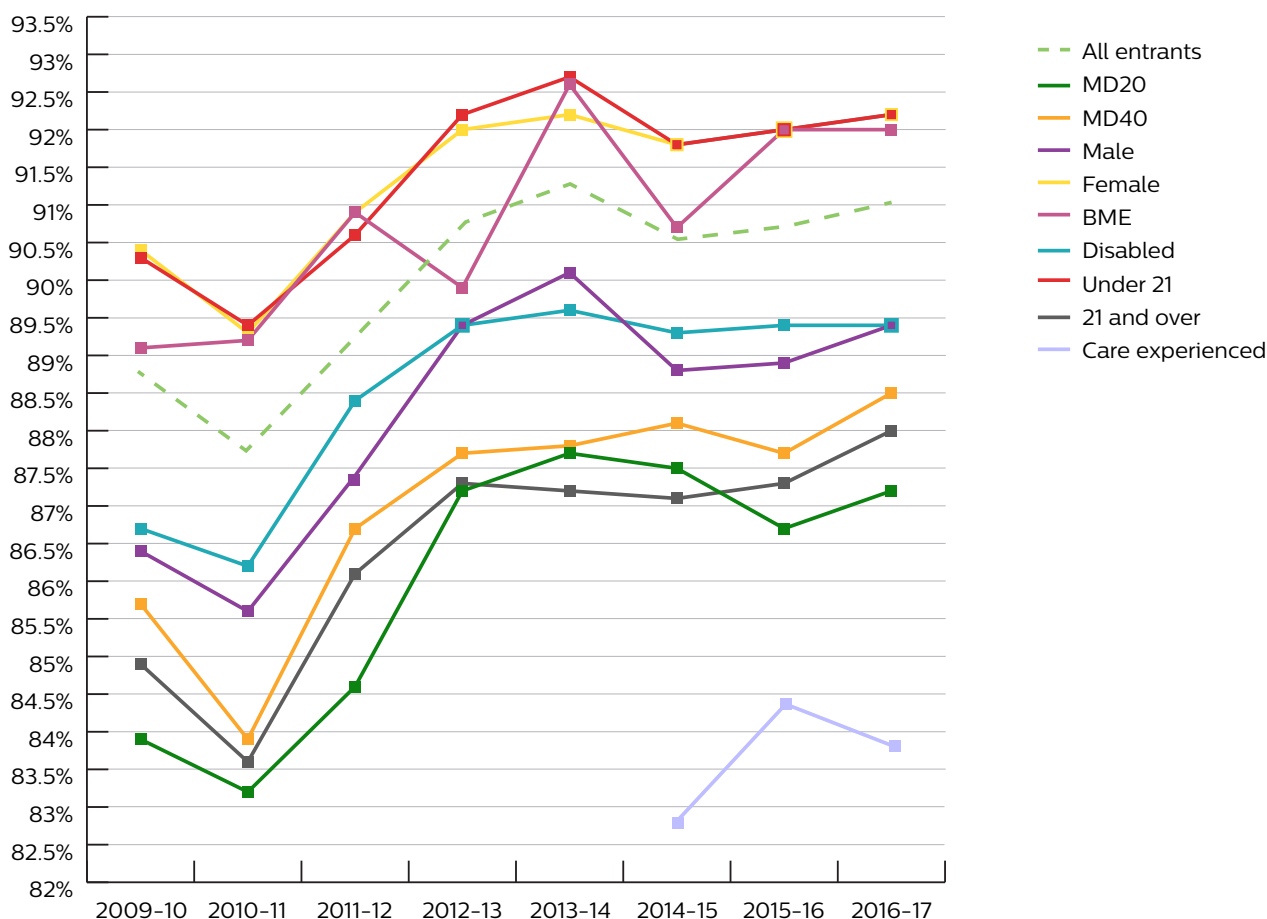


Figure 1: Variation in retention rates for Scottish domiciled undergraduates between 2009 and 2017 (Source: Scottish Funding Council)

Unequal opportunities and outcomes are not only a Scottish problem and have a long history. Retention and progression as a domain of inquiry, practice and policy development has evolved over more than forty years as mass participation in higher education has grown around the world. Retention rates vary considerably between, and within, different national education systems. Concerns for equity, and to understand why some students drop out of study, have attracted considerable research (see for example Quinn, 2004, 2005; Welsh Assembly, 2009).

Theoretical models of student retention are well established (Bean and Metzner, 1985; Tinto, 1987) and concern for retention of disadvantaged groups has provoked significant activity, with close attention paid to pedagogical approaches that encourage retention (Thomas et al, 2017). Nevertheless, inequality has remained stubbornly persistent (Commission on Widening Access, 2016).

Recently the introduction of tuition fees, and the economic impact on institutions of student drop out has also emerged as a driver for concern with retention. Crawford, in a paper for the Institute of Fiscal studies (2014), comments that:

There are large socio-economic gaps in higher education participation. But returns to education in the UK derive largely from the attainment of qualifications rather than years of study, and additionally vary by institution, subject and degree class for graduates.

In Scotland, the Government and the Commission on Widening Access (CoWA, 2016, [recommendation 32](#)) have set ambitious targets for ending inequality in Scottish higher education, resulting in access, retention and progression being key areas of focus for all Scottish HEIs.

Additionally, a minority of Scottish HEIs have also signed up to the UK-wide TEF. Student retention and progression is one of the TEF metrics, linked to 'learning environment' and 'student outcomes and learning gain'.



What's happening in the Scottish sector?

All HEIs are required to report on retention and progression as part of the Outcome Agreements they negotiate with the Scottish Funding Council. Taken together these Outcome Agreements provide useful insights into the sector's approach to retention and progression and the general direction of travel. Data from other sources, including a review of all ELIR Cycle 2 and Cycle 3 reporting, Enhancement Theme reporting and Theme outputs, and from stakeholder engagement add depth to the Outcome Agreement accounts, which are necessarily at a high level. Figure 2 lists the key features, institutional drivers and aspects of data use to support retention interventions in the Scottish sector that emerged from our research.

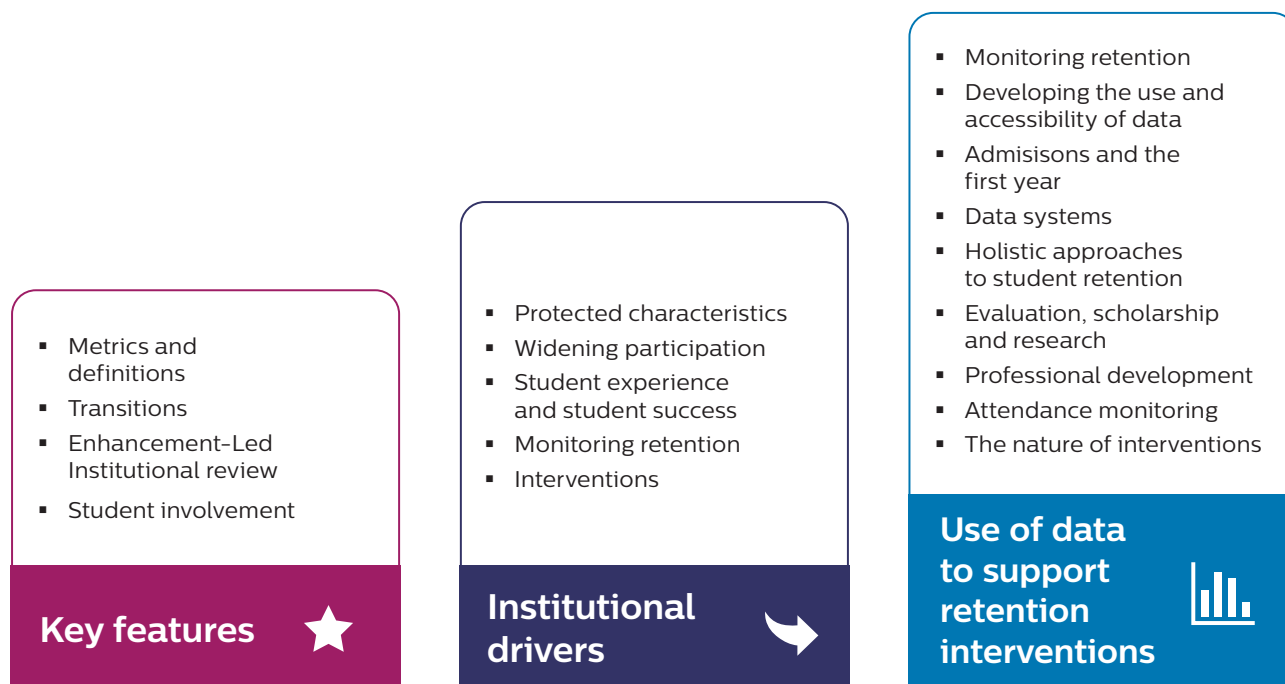


Figure 2: Key features, institutional drivers and aspects of data to support retention interventions

Key Features

Metrics and definitions

Reference to retention and progression in the Outcome Agreements is strongly influenced by Scottish Funding Council (SFC) guidance, which requires institutions to report on the retention of Scottish domiciled students overall, the retention of students from Scottish Index of Multiple Deprivation (SIMD) 20 and 40 data zones, and the retention of students with protected characteristics. HEIs adhere to the SFC definition of retention in terms of the percentage progressing from year one to year two for external reporting (the Open University in Scotland is an exception since the progress of its wholly part-time student population cannot be captured through this metric). All the institutions we spoke to explained that internally their view of retention is broader than this strict definition. This wider interest is driven by an interest in student success. For some HEIs, close interrogation of student progress data takes place at every transition point in the student journey through their undergraduate studies.

Our research shows there is however, ambiguity in the use of the terms retention and progression. One institution defines retention as progressing from one year to the next and progression as the rate of progress through their programme, although they report this usage is not universal across the institution. Elsewhere retention and progression are often referred

to less rigorously in terms of clear definition, although there is active interest in developing new metrics that enable better understanding of retention and progression in the context of the learning journey. Further information on definitions and terminology can be found in appendix 2.

Transitions

Student transitions are an important influence on retention. It is evident from Outcome Agreements that most institutions provide transition support in the period before course start. Support includes advice and guidance, groups on social media, summer schools and transition modules.

Example of practice

The University of Dundee – MD20/MD40 students in to Medicine

The School of Medicine widening access programme includes the development of contextualised admissions, a Gateway to Medicine programme and, more recently, a summer school. Analysis of a formative assessment taken in the middle of semester 1 showed that many MD20/40 students, particularly those with high adversity contextualised admissions scores, were struggling with this assessment. This was a pattern repeated in end of year exams leading to many students in this group repeating year 1. The School introduced specific interventions including the summer school, the formative assessment in semester 1 (including detailed analyses of the outcomes) and a series of extra sessions to provide additional learning support for this student group. This is an example of how additional support can be provided to students from areas of multiple deprivation using an evidenced-based approach.

[From project survey response]

The first year of study is widely recognised as a critical period for student retention (for example see Simpson, 2003; Wilcox et al, 2005; Yorke and Longden, 2008; and Kift, 2015). This is reflected in practice across the sector and in initiatives to review and enhance induction support. However, year 1 is not the only critical transition; institutions that support significant numbers of articulating students also give year 3 a high priority. In our discussions several HEIs noted that supporting third year students is not just about the retention of students who are joining the university but it's also an issue for students who began their studies in year 1 whose cohort may radically change as a result of the influx of new students.

A number of institutions noted that definitions of retention in terms of progression from first year to second year have limited use for part-time study or flexible programmes. There is heightened awareness of this within the Scottish HE sector following the report of the Commission on Widening Access. Our research suggests there is a challenge to find better and more widely recognised metrics to account for student progression and success.

There are some interesting indications of thinking about retention in a broader frame, recognising the increasing diverse nature of the student population. So, for example, one institution intends to carefully monitor retention rates for apprentices, another identifies students who come in through clearing as an at-risk group, and there is some indication of interest in retention at postgraduate level.

Enhancement Led Institutional Review

Enhancement-Led Institutional Review (ELIR) is a central component of the Quality Enhancement Framework in Scotland and retention and progression features consistently in institutional accounts of enhancement. The ELIR Cycle 2 and ELIR Cycle 3 Technical and Outcome Reports contain discussion on the quality, access and use of retention and progression data. There is more reference to progression than retention, but both of these, and 'non-continuation', are areas that receive attention across the ELIR outputs. The focus

in ELIR, marries with that outlined above in terms of supporting transitions and progression through study, and seeking to identify patterns in student cohort related to distinct student groups. Many HEIs note the use of benchmarking of performance against the sector, such as through the use of HESA data, which is used to inform KPIs.

Student involvement

Across the sector it is now the norm for students to be involved in university committees at all levels and there are often formal systems for consultation with student associations before new retention initiatives are put in place. Many of our interviewees commented on the importance of active student engagement in the design and delivery of peer mentoring, peer support systems and peer assisted group learning. They emphasised the value of student feedback from mentors and mentees in the continuing development of retention support.

While student representatives see monitoring and evaluation reports, individual students don't have access to institutional dashboards. One institution reported that they are engaged in discussion about ethics and the possible negative impact of some forms of data disclosure. They believe that there should be a clear rationale for why data is collected – it should be mindful, ethical and aimed at supporting student learning.

Institutional drivers

Scottish HEIs have diverse missions and there is a wide variation in student demographics across the range of institutions. Conscious of this diversity, the research interviews were used to look more closely at institutional perspectives on the key drivers for engagement with retention policy and practice.

The requirement to provide data on retention on an annual basis to the SFC has influenced policy and raised the visibility of retention. However, none of the institutions we spoke to saw this as the primary driver for engagement. One institution commented that external benchmarks and reporting are about accountability and internal institutional drivers are about enhancement. The most important influences for engagement with retention policy and practice are identified below.



Protected Characteristics

Even where overall retention figures may be good, there are often sharp discrepancies between one or more protected characteristics. Often, but not uniformly, women have significantly better retention rates than men and students from SIMD20 neighbourhoods experience lower retention rates than those from the least deprived data zones. Across the board institutions are monitoring retention through a widening participation lens, not simply in order to be accountable for funding and in response to nationally determined policy priorities, but also to understand and affect important dimensions of their institutional practice.

In this context, the Student Transitions Enhancement Theme (2014-17) resonated strongly with the Scottish sector. As noted previously, improving understanding of, and supporting, transitions into, through and out higher education was a major Theme focus, particularly supporting transitions of different groups of students in order to improve retention. Therefore, the quality enhancement focus has complemented the HE sector interest in widening participation. The focus on supporting different student groups and protected characteristics, in transition, has been a key area of activity across the documentary evidence reviewed.

The current Theme, Evidence for Enhancement: Improving the Student Experience (2017-20), appears equally as relevant to the sector and enables institutions to explore, enhance and share practice on challenges related to the nature and use of data as signposted across all forms of documentary and interview sources considered for this report.

All institutions provide annual reports on retention of their Scottish domiciled students against the full range of protected characteristics in their Outcome Agreements with the SFC. Beyond this basic monitoring we found some variation in policy and practice across the sector. At one end of the range there are approaches where interventions to support students with a particular protected characteristic are treated relatively discretely. At the other is a more holistic approach looking at the whole student. Institutional practice is distributed across this spectrum. It's clear from the interview responses that there is a lot of very important thinking around this taking place within institutions not least because it has important implications for evaluation and the use of data and evidence. Staff talked about the need to be inclusive by design and how support designed for a particular characteristic tends to represent good pedagogy that can be applied to all. One respondent noted that interventions should be based on the idea that the system should work for students and not that there are student deficits to be compensated.

Widening participation, equality and diversity

A 2009 report for the Equality Challenge Unit (Hewitt and Rose-Adams) found relatively little synergy between institutional policy and practice in widening participation and equality and diversity. However, the evidence from our desk research and the testimony from institutional representatives in our interviews suggest that there has been considerable progress in this area across the sector since that time. All of our respondents spoke about the ways in which these issues are seen holistically when viewed from a retention perspective.

The way widening participation impacts on policy and practice varies considerably. Institutions that have historically attracted entrants from low participation neighbourhoods have well established policy and practices that have evolved over time. At other institutions a priority concern about retention is more recent. Widening participation is a critical dimension of institutional responses to increasing student diversity. To differing degrees, all institutions recruit growing numbers of students with different national, educational and language backgrounds. Support for care leavers is a national priority and the introduction of graduate apprenticeships means that some institutions are now teaching students with a different range of prior experiences and contexts.

Student experience and student success

A number of institutions of all types noted that their retention policy is driven by their determination to provide an excellent student experience; student success should be across the board and not influenced by background or prior experience.

The Teaching Excellence Framework

The Teaching Excellence Framework (TEF) includes retention as one of its three key metrics alongside student feedback and graduate employment. Only five Scottish HEIs participated in the first round of the TEF in 2017 but we were curious whether discussion about the TEF had influenced policy or practice across the Scottish sector. Three of the institutions that took part in our interviews participated in the TEF. One felt that participation had not significantly influenced their approach since widening participation and retention practices were already well established. The other two felt that there had been an influence and it had provided a push to think more about metrics and to understand their own data better. Interestingly a number of institutions that had not joined the TEF made the same point. Despite, sometimes strong, reservations about the applicability of TEF metrics in the Scottish context, there was still a sense that TEF marks a trend towards a more data-led approach that impacts on all institutions.



Using data to support retention interventions

Because retention activities are reported at a relatively high level in the Outcome Agreements it's not usually possible to link claims for good practice with evidence and data. We investigated this in more depth in the interviews.

Monitoring retention

Systematic monitoring of retention data takes place across the Scottish sector and all institutions have systems in place to interrogate data and take action when required. Monitoring typically takes place at multiple levels. The ELIR data indicates that over the last seven years many institutions have moved from monitoring of retention and progression situated purely within annual quality monitoring processes, with a trend towards more institutional level data allowing for comparative analysis and exploration of protected characteristics and specific groups of students across the institution. To enable such monitoring, institutions have been developing a focus on the quality and robustness of data, reflected in the reporting of enhancements to, or introductions of, new management information and student record systems.

Developing the use and accessibility of data

Another distinct trend in the sector is the focus on making data accessible to staff at different levels in an institution and with the ability to understand how local trends, such as in particular programmes, compare to programmes in other parts of the institution. Some institutions have consciously moved to structures that focus on retention and bring staff and students together to share insights and design new interventions within and across discipline and school boundaries (see University of Aberdeen example of practice). There are differences in detail reflecting different organisational structures but annual review is at the core of the monitoring process. A number of institutions mentioned that part of annual review is a requirement for action planning. Interventions taken as a result of this process are necessarily based on historic data and there is a great deal of interest in providing staff with data that can be looked at while students are studying. Several institutions have introduced dashboards that aim to provide staff with data in accessible formats. Real time data remains an aspiration for most HEIs.

Example of practice

The University of Aberdeen Retention Task Force

As part of its new strategic plan, Aberdeen has set up a retention task force. The group includes staff and students from all parts of the University. The group connects people who had been working on retention in schools and departments and facilitates the sharing of practice and discussion on the use of quantitative and qualitative evidence. It sees monthly reports on student withdrawals and has helped to progress on how to tackle student retention in a sensitive manner.

[From project survey response]

Strategic use of data

Such developments in the robustness and access to data are seen to have enabled, or at least supported, the development of what is identified by institutions as a more strategic use of data, used to inform areas such as recruitment, retention and student support. Accompanying this strategic focus, are structures in the form of committees, steering groups and working groups - for example, 'Retention Action Group' and 'Student Retention Steering Group' or committees with a specific widening access or student experience remit - which are commonly focused on interrogating retention and progression data and developing a

plan of work, as part of specific retention, student experience or enhancement strategies within the strategic focus of the University. In turn the sector has seen the emergence of distinct types of staff, commonly academic-related positions, whose roles are linked to these workstreams, for example Enhancement and Retention Officers.

Example of practice

Edinburgh Napier University – an example of a data driven approach

The planning and intelligence team produce three reports each year which are considered by our Student Retention and Outcome Steering Group (SROSG). These reports are made available to Academic Schools via Cognos (our management information service). The reports provide data for four years, which enables trends to be monitored and a focus on progression in year 2 of study. In addition to overall university figures this is broken down by school and by selected protected and other characteristics (including gender, disability, ethnicity, economic background). We also consider progression of UK students separately from international students as well as looking specifically at Scottish-domiciled students. Last year schools were asked to provide action plans identifying activities at key points in the student lifecycle. The SROSG reports into our Learning and Teaching Committee/Student Experience Committee and presents an annual report to the Academic Board.

[From project survey response]

Admissions and the first year

The influence of the Commission on Widening Access (2016) is apparent in the discussion we had with sector stakeholders. Many institutions are making use of admissions data to consider student applications in context – a smaller number make it clear that admission is only a first step and are targeting at-risk student groups for subsequent interventions. Informed by retention theory, the first year is the focus for many institutions and there are reports of new initiatives to support transition, orientation and induction including summer schools, associate student schemes, discipline focused academies supporting bridging and articulation, and the development of peer mentoring schemes.

Example of practice

The University of Glasgow – linking admissions data to student support

The student records system combines admissions and student support data to enable tracking and monitoring of flagged WP students from pre-entry to graduation. This process was highlighted as an example of best practice for the sector by the CoWA Interim Report. It allows at risk students to be monitored and intervention targeted at relevant points in the academic year.

[From project survey response]

Data systems

It is notable from the two cycles of ELIR reporting considered in this research that management of data and improving the quality and usefulness of data has been an area of focus, with many institutions investing in the development of systems and indeed expert staff. However, some institutions report that currently there are challenges in making the most of data. This may be because the systems are not sufficiently user friendly or because of incompatibility or poor communication between different sources of student data. Many of these institutions are at some point in the process of commissioning new software for student records, customer relationship management and virtual learning environments. Interoperability is a key requirement in the specification for new VLEs.

Holistic approaches to student retention

Quantitative data is only one source of evidence used by HEIs when considering student retention. A number of respondents reflected on the value of a multi-level approach. At institutional and programme level the development of retention support has often been incremental. Academic staff, who are close to students through the modules they teach can play critical roles in spotting individual problems and making connections with support services. In some institutions small class sizes or close links between staff make this particularly effective. More formally there has been a very clear trend across the sector to refresh and reorganise personal tutor systems. There are also initiatives to bring specialist staff (ranging from student support, academic skills, student experience, academic development, retention, and recruitment) and teaching staff closer together. Some institutions view retention as a component of wider staff responsibility for a good student experience. In others, more explicit efforts are made to foreground retention and to ensure effective linkages between academic staff and support services.

Example of practice

Queen Margaret University – school-based retention champions

The Widening Participation and Student Retention (WiSeR) Board has a remit to develop, promote, review and evaluate strategies and activities in support of our Outcome Agreement targets. The Board considers retention data on an annual basis. The Board funds a number of projects each year that support and enhance our broader retention activities. This includes the two WiSeR Co-ordinators (0.5 FTE) appointed in each School.

These posts were established in 2015-16 in each of our Schools to support and promote the implementation and embedding of best practice in relation to widening participation and student retention activity. Coordinators combine a half-time academic role with their retention responsibilities. A primary aim is furthering engagement of staff across the University with our student retention and widening participation priorities.

[Edited from project survey response]

Evaluation, scholarship and research

Digging beneath the data to understand causes requires a framework within which actions, ideas and experiences can be explored, tested and evaluated. In our literature search and in discussion we found relatively little evidence of systematic scholarship or research into retention policy and practice. This doesn't mean that it doesn't happen, but it reflects a real issue in strengthening pedagogy and practice within institutions and across the sector. One interviewee (from a student support background) commented that as non-academics their evaluative work was not seen as research. There are issues here about skills, support for staff and what is seen as valuable in terms of systematic inquiry. Evaluation is a concern for all institutions. Responses from interviewees suggest, however, that this is an area where there is scope for improvement, with two commenting that their institutions are making a big effort to ensure that consideration of effective evaluation becomes part of the design of new interventions rather than being considered after implementation. A small number of institutions host open access repositories for research and scholarship and these could form a valuable platform for greater sharing of experience and insights across the sector.

Professional development

Across the sector new academic staff are required to undertake formal teaching qualifications as part of their probation and within taught postgraduate programmes in educational development, such as Postgraduate Certificates in Learning, Teaching and Higher Education or Postgraduate Certificates in Academic Practice. These qualifications

typically have an emphasis on evaluating changes to practice, undertaking action research, and considering different types of data in the context of institutional aims and strategies. However, it doesn't seem to be the case that these qualifications will typically focus on data in the context of retention and progression of students unless the participant has a specific interest in this area, and this may be quite focused at the level of a specific module or cohort. There seems to be scope, therefore, for development of support for staff in engaging with retention and progression evidence.

Example of practice

University of Strathclyde – Strathprints - supporting and sharing scholarship

The Strathprints institutional repository is a digital open archive of University of Strathclyde research outputs. It has been developed to disseminate Open Access research outputs, expose data about those outputs, further the goals of open science, and enable the management and persistent access to Strathclyde's intellectual output.

<https://strathprints.strath.ac.uk>

Attendance monitoring

We noted that a number of HEIs are introducing attendance-monitoring systems with a view alerting staff to problems and making an impact on retention. We heard evidence of sharing practice but also some concerns that this is an area where more evaluative work is needed.

The nature of interventions

Our survey suggests that there are rich and varied retention practices across the Scottish higher education sector. However, the sector wide picture is complex. In thinking through the range of practices that are referred to in documentary evidence and formed the background to our interviews with retention specialists, we found it helpful to use a matrix model (see figure 3).

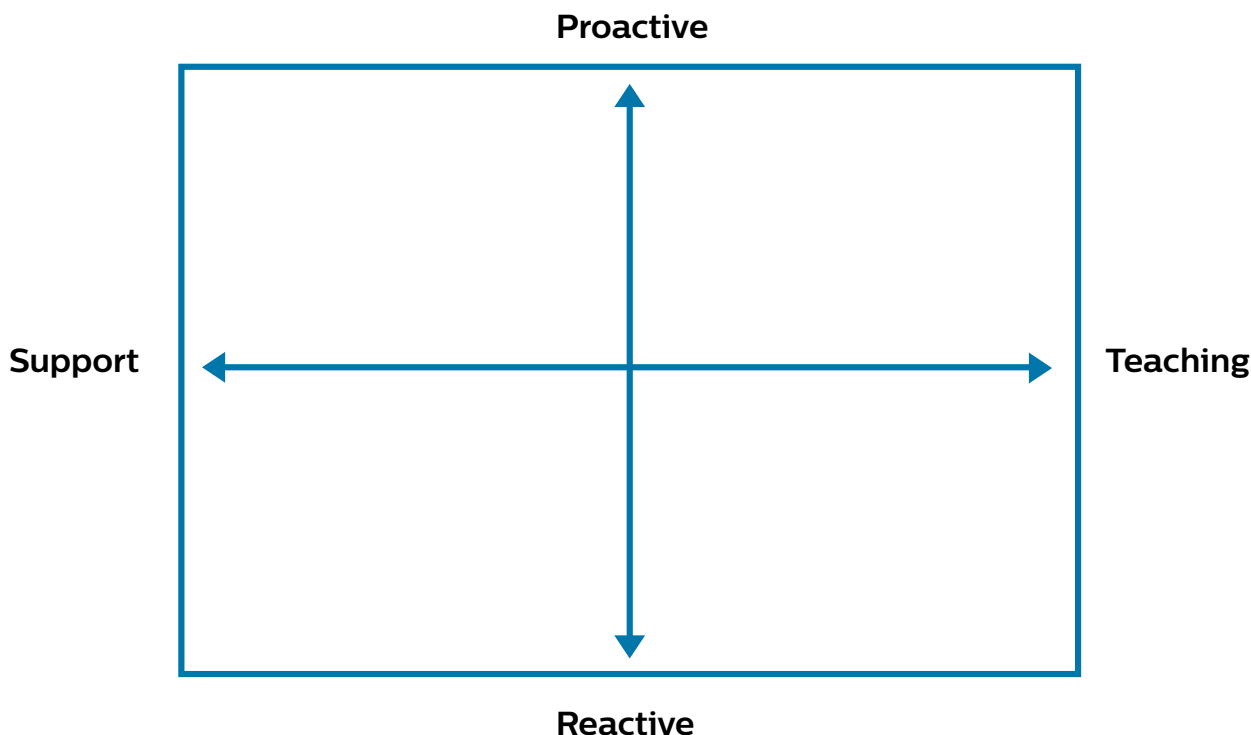


Figure 3: A framework for discussing retention initiatives

Retention initiatives may be reactive in response to issues identified through monitoring or at an individual level by lecturers and support staff. On the other hand, initiatives are taken proactively. These may be prompted by insights into practice or in response to policy developments; for example, the introduction of protected characteristics. Orthogonal to the reactive/proactive dimension there is also a dimension that can be characterised by the extent to which an intervention is concerned with student support or with learning and teaching.

Viewed at an institutional level, practice is multi-stranded and different strands occupy different domains of the matrix. However, it is important to note that the practice matrix evolves over time and every institution operates with layered practices that have their own history. We noted differences between institutions, which had had longer traditions of working with widening participation and retention and those for whom it was relatively new as an explicit priority.

Scottish issues and trends in a global context

In this section we consider the themes identified in the published literature in the context of our findings from a review of the UK and international literature. These are highlighted in figure 4.



Figure 4: UK and international Themes

Diversity

At an institutional level there are many examples of successful retention initiatives on specific programmes. Nevertheless, student withdrawal/dropout and inequity of outcome by social background continues to be a challenge internationally (Australian Government, 2017). Huang et al. (2019) suggest that one reason for this is the increasing diversity of the student population. They argue that retention is a complex and multifactorial phenomenon where individual, social, pedagogical, and organisational factors all play a part. Moreover, because the way in which these factors combine and interact varies over time and between institutions, what may prove effective in one context may not be directly applicable to another. Theoretical models of retention provide a base for developing policy and practice but:

... if attrition is to be meaningfully understood and purposefully managed, then the institution needs to implement their student success strategies, policies, and actions with specific social, cultural and organizational context in mind. (Huang et al. 2019)

An Australian Government (2017) report on retention notes that:

Some submissions noted the complexities around evaluating the success of targeted interventions and support services. A number of respondents pointed out that approaches that work for one cohort or institution may not necessarily work for another and what works for one faculty or field of study may not be scalable across the whole sector.

A UK wide survey of the use of data in widening participation and retention (Holland et al. 2017) underlines the complexity of the challenge to improve retention. Woodfield (2014), in a report for the Higher Education Academy, also shows that subject discipline is also a factor that influences the success or otherwise of retention initiatives.

Scholarship

In reviewing the Scottish, UK and international literature on retention and the use of data and evidence, we found relatively few peer-reviewed publications that originated from staff in Scottish universities. Indeed, there seems to have been a decline in activity between the first and second decades of the new millennium. In part this reflects a focus on contingent issues, in particular progression into HE from colleges (articulation) and from low participation schools (Kadar-Sadat et al. 2016), and progression on from HE into employment (employability). An exception to this trend is nursing and midwifery, although Rodgers et al. (2013) in a sector wide review echo some of the challenges noted in the international literature observing that:

Some HEIs have dedicated a high level of resource to tackle attrition and support retention. There are few trends in attrition/retention that cut across the HEIs. Whilst the study identified initiatives focused on addressing attrition/retention, most had not been evaluated often due to the multi-factorial nature of attrition/retention and difficulties with measurement.

The first year

Sector wide retention metrics define retention in terms of progression from the first to the second year of an undergraduate programme. Across the sector this is a major focus for institutional retention activity. In a paper on student progression, Jobe et al. (2016) remark that such a focus is consistent with early theories of retention and more recent theoretical developments. However, they stress that despite this, *'there still exists a gap in what organizations know and what they effectively do in terms of improving student progress.'*

Learning analytics

It is clear that there is a general trend towards greater use of data and some institutions are beginning to make use of data/learning analytics. In some cases, institutions report that relatively high-level groups are tasked with monitoring data and it would be of significant value to the sector to understand how monitoring informs interventions and the underlying models that inform interpretation of data and practice-based initiatives. The development of learning analytics is evident, in that a small number of institutions are developing approaches that provide real-time information on student progress that is available in dashboard form to frontline staff. Three institutions reported in some detail on work of this nature within their Outcome Agreement with SFC.

Example of practice

The Open University in Scotland – using predictive analytics

The Open University in Scotland's Retention Action Group has worked with some of the University's world-leading experts in Learning Analytics, to develop a predictive model and design interventions tailored to meet the needs of students in Scotland. We are pleased that there has been an improvement in the proportion of both new and continuing students who completed a module presentation at the first opportunity.

[From the Open University in Scotland's 2017-18 Outcome Agreement]

The trend towards greater use of learning analytics has the potential to address weaknesses in evaluation and the use of data to inform retention work. There is much recognition of the potential of learning analytics to identify students at-risk, however, there has been more limited adoption of learning analytics in the design and evaluation of retention interventions (Sclater 2017; and Ferguson and Clow 2017). The international literature, particularly evidence from Australia, suggests that there are challenges in using this new discipline effectively to improve retention and evidence that the use of learning analytics makes a difference is limited (Sclater and Mullen 2017). The most mature implementations are in the USA and Australia; there are a number of cases of increases in retention (some of these where the implementation is compared with a control group). Typically, improvements seem to be of the order of 3-5%. However, there is also a sense that this is an approach that is still in the early stages of development (Huijser et al. 2016).

The current Enhancement Theme has established a number of collaborative clusters - projects where groups of institutions agree to work collectively on matters of mutual interest within the broad scope of the Theme, which have the potential to add value to the whole sector once complete. Many of the institutions we spoke with are part of the learning analytics cluster. There is a trend towards greater use of analytics but take up is far from universal. We spoke to institutions that currently have no plans to engage, some that are running soft pilots and testing proof of concept with commercial providers, through to a small number who are now fully committed to developing their use of learning analytics. HEIs that are not so actively involved are often concentrating on improving their data handling capabilities and some are taking time to think through ethical and pedagogical

issues ahead of their next steps. In the latter case ensuring that students are involved in the discussion is seen as important. One institution noted that retention was a key driver for the implementation of learning analytics but in another case the primary driver is the way in which analytics contribute to learning design. The debate about learning analytics is not just about data and technology – one respondent noted that while analytics provide useful insights from a retention perspective there are critical stories around drop out that analytics don't capture.

Example of practice

University of the Highlands and Islands – using dashboard reports

The university has improved its KPI reporting functionality to enable more effective monitoring, evaluation and action planning at all levels. 'Dashboard' style reports have been developed to facilitate live monitoring of, for example, applications and enrolments against agreed targets at subject network and programme level. Annual monitoring report proformas are available for download, pre-populated with a standard minimum dataset of KPIs relating to retention, progression and achievement and the student population profile (including equalities data). Trend data over three years is included to support staff in evaluating the impact of enhancement initiatives. The reporting functionality supports detailed analysis of our student population, for example in relation to socio-economic background or protected characteristics.

[From the University of the Highlands and Islands 2017-18 Outcome Agreement for the three institutions quoted.]

Australian research suggests that there are currently two distinct approaches to the use of learning analytics. For some, developments are seen as technical and aim at providing data to teachers to trigger action. The second approach is more nuanced – seeing learning analytics as part of developing a more in-depth insight into learning and teaching practices and their outcomes (Colvin et al. 2016). In their UK, the Jisc review of the way that analytics are used (Sclater and Mullen 2017) noted that a great deal of data is generated that describes interactions with university systems but this can be descriptive rather than analytical. The models that underpin learning analytic algorithms embody assumptions that are value laden. For example, Huang et al. (2019) and de Freitas et al. (2015) both talk about analytic models in terms of stakeholders and consumers. What can be measured and the underlying assumptions about relationships between variables can lead to a university centric view of student behaviour that does not necessarily explain why students adopt certain practices, what they are doing that is not measured, and where learning is taking place. In a similar vein Prinsloo et al. (2015) argue for a critical approach to the use of learning analytics:

... from an institutional and pedagogical perspective, an understanding of what drives student learning and success will remain key. Institutional researchers must balance the “what” provided by the patterns in data with the “why” which require more in-depth investigation through traditional research approaches.

The research agenda therefore needs to encompass both learning analytics but also insights from qualitative and other approaches and evidence sources (Zawacki-Richter and Anderson 2014).

Cross-sector collaboration

In Australia some of the issues relate to cost and a reluctance to share data publicly:

In general, few of these studies have been visible in the literature, and although some of these data have invariably been left undisclosed due to competitive advantage, overall the comparatively recent nature of the software tools and the high costs of data analysis as well as the lack of interoperability of data sets and diversity of vendor offerings have left much of this evidence untapped and unpublished. (de Freitas et al. 2015)

Although one of our interviewees referred to sensitivity over sharing data there is a culture of working collaboratively in Scotland. Strong linkages and a willingness to share and discuss is seen as part of the ethos of the Scottish sector, 'something we do well'. Most people mentioned the Enhancement Themes as an important part of this ethos. However, there was also a feeling that sector wide initiatives are often on limited time scales that preclude the longer-term development of a community of practice. One respondent felt strongly that there is a community of practice for widening participation but not for retention.

Ethics and data

Another contrast between Scotland and Australia is in attention to ethics and data. In a report conducted by Colvin et al. (2016) for the Australian Government Office for Learning and Teaching, they observe that:

The relative silence afforded to ethics across the studies is significant. The lack of discussion does not reflect the seriousness with which the sector should consider these issues. Internationally, there has been significant investment devoted to the development of resources that can guide institutions through the many ethical implications and challenges that LA will surface.

While we found no references to ethical issues in Outcome Agreement documents these were frequently foregrounded in the interviews we undertook. Systems that underpin the use of data and evidence remain based largely on annual cycles in which enhancement activity is then directed at subsequent student cohorts. Institutions are moving towards greater use of learning analytics and systems that support the provision of real time data. However, the use of personalised data, for example assigning specific risk scores to individuals, raises new ethical and pedagogical challenges. This is a new and evolving area and sharing questions and solutions across the sector would be helpful. Two publications from South Africa provide helpful insights on ethical issues (Willis et al., 2016; Prinsloo, 2017).

Systems, sense making and professional development

Many of the challenges identified by interview participants in improving retention practice are directly linked to the use of student data. There are issues of data quality and interoperability across different records systems and work is in progress to improve this. However, a number of respondents also feel that making sense of data is also an important, multi-dimensional challenge. In part this challenge is about presenting data in formats that are accessible and usable by staff and also providing the tools and development opportunities to enable staff to interrogate data and use the data to enhance understanding. This might be an area where cross-sectoral collaboration would potentially be helpful.

It may also be useful to reflect on the issue of staff development in the use of learning analytics using the learning highlighted in recent Australian studies (Huijser et al. 2016 and West et al. 2016). For example, Huijser et al (2016) found that learning analytics is, still a potential source of confusion for academics. They observe wide variability between institutions and within institutions, in terms of preparedness, issues of importance, strategic positioning, executive support and resourcing. West et al. (2016) explored the experience of a sample of Australian and New Zealand academics in relation to learning analytics and found significant interest but low levels of expertise and use.

Online and distance learning

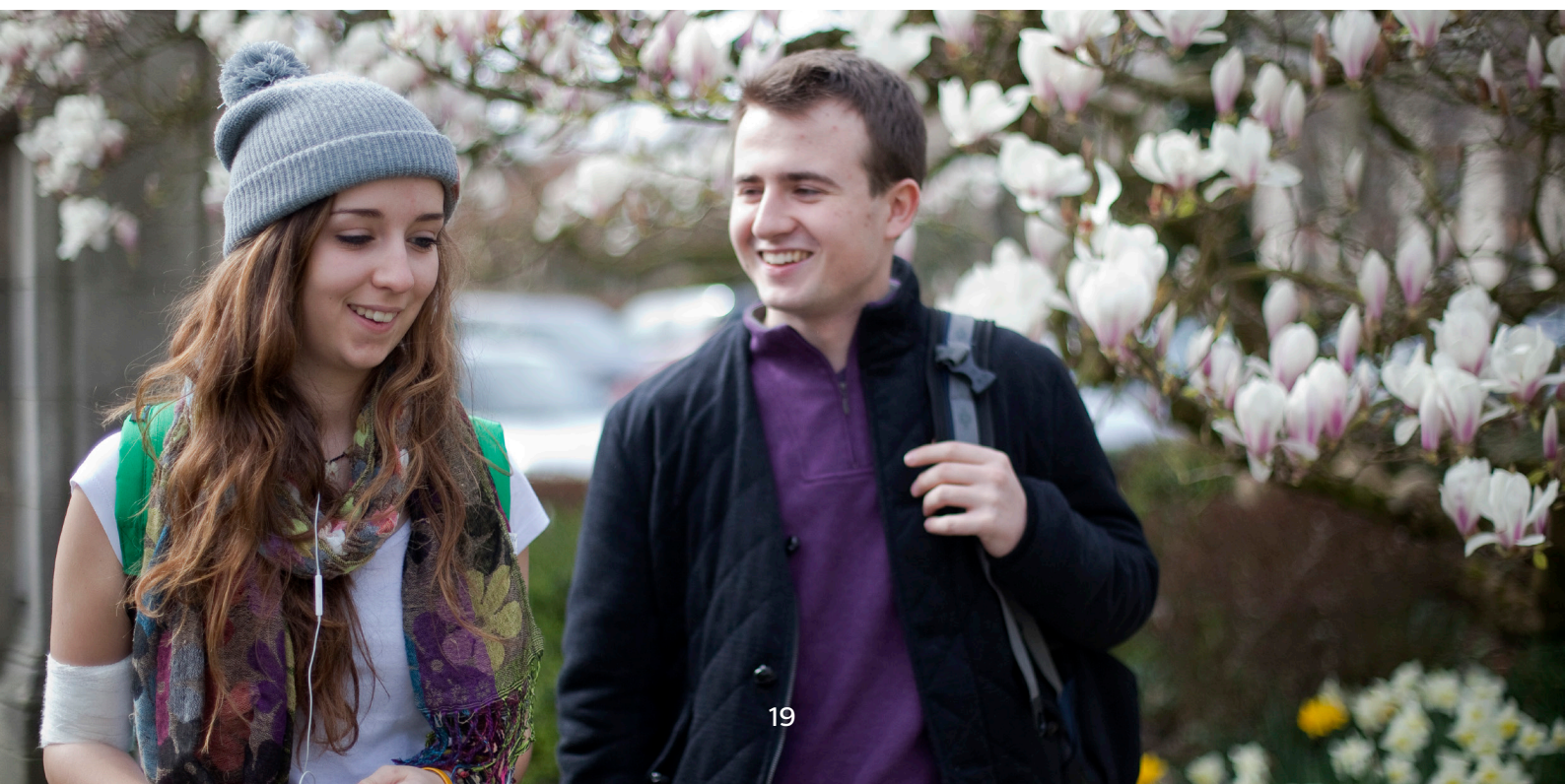
In understanding student behaviour and how this impacts on their retention and progression in the 21 century there may well be value in extending the lens of enquiry to include other modes of study not least online learning, which is an increasingly important part of the student experience for campus based as well as distance learners. Gaytan (2015) notes that:

...most student retention models have been designed for the face-to-face classroom learning environment, making it very difficult to apply them to the online learning environment. In essence, the student demographics for online courses are very different from the face-to-face classroom.

A recent briefing by Contact North (2018) highlights ten areas in which institutions are tackling retention in online and distance learning. It notes that except in the area of predictive analytics much of this innovative work is not supported by systematic evidence of effectiveness.

Communities of practice

In our interviews with representative from Scottish HEIs we were interested to explore whether there were identifiable communities of practice for retention activity. Views at an institutional level were almost equally split between yes, no and something less categorical. To an extent these responses reflected different histories and structures. Some larger institutions felt that it would be more accurate to talk about communities of retention as part of a community of practice around the student experience. Most spoke positively about networks and staff sharing knowledge and expertise.



Conclusions

It is clear from the range of sources reviewed for this research that student retention is a high priority for all Scottish HEIs. National policy priorities relating to widening participation and articulation have a strong influence on institutional priorities and on the ways in which retention data is collected and publicly reported. However, these external drivers are framed in the context of strong institutional commitments to enhancing the student experience and ensuring successful study outcomes for all students.

We found high levels of targeted activity linked to retention and progression across the Scottish higher education sector. The nature of this activity is mediated by diverse institutional missions, history and contexts, and shared responses to policy priorities and changes in the student population. The retention terrain in Scotland is characterised by a strong emphasis on practice. Through our research we found less evidence of systematic scholarship and research. Indeed, there seems to have been a decline in the publication of relevant research and scholarship from Scottish institutions in the last decade (with the partial exception of nursing). We found only a few papers or reports that focused on the use of evidence in retention and progression. Critically for this report it meant that we were not able to locate in-depth case studies that illustrate good practice in the use of evidence. We should stress that this doesn't mean that there is no good practice; simply that it's not possible to easily identify such practice from publicly available sources.

There is a lot to be learnt from the international, particularly Australian, sources that we discuss and reference in the body of the report. The literature highlights the fact that retention and progression is a complex phenomenon that is highly contextual and cuts across admissions, learner support and learning and teaching pedagogy. A number of our interview respondents emphasised that they see retention, progression and student success as central to good practice in teaching and student support. There is scope perhaps for more work to be done that distils these insights into an explicit pedagogy of retention that integrates areas that may sometimes be organisationally and conceptually separate.

There is a trend towards a more systematic use of metrics. Interoperability between different databases is a challenge for many institutions and most institutions have been investing in, and are in the process of, developing and enhancing their data handling systems. These changes seem to be driven by a desire to better understand the link between student profiles and background and student outcomes and are also influenced by the new possibilities available through learning analytics and the use of big data. Only a small number of institutions are currently implementing learning analytics and approaches to big data and there are practical and ethical issues, which remain to be resolved.

The focus on metrics risks skewing the use of evidence towards quantitative measures. The international literature (Prinsloo et al, 2015; Zawacki-Richter and Anderson, 2014), and reflections from our interview respondents, suggests that effective practice requires a mixed methods approach that combines quantitative with qualitative approaches in evaluating and researching retention practice.

Retention is a complex, multi-factorial challenge. Describing and monitoring what happens at all levels of the system is relatively straightforward. Understanding underlying causes is a challenge. There is scope for sharing ideas and expertise on these difficult evaluative questions across the sector. There is also a case for collaboration on professional development for academic staff in the use of data and evidence in retention interventions. In drawing together our analysis of the evidence we have reviewed, we have proposed a number of key observations for reflection within the sector.

Key observations for reflection within the sector

From the evidence consulted for the report, there is an apparent disconnect between the wealth of retention focused practice, the institutional emphasis on improving data (primarily quantitative) and grounding of this practice in retention pedagogy. This is an articulated trend in the literature. To address this issue requires different levels of support.

- Institutions should support the development of evaluation and data interpretation skills in retention practice among data specialists, retention specialists, student services and teaching staff
- There should be recognition of the value of, and institutional support for the engagement with, pedagogical approaches to inform retention practice
- Institutional recognition that institutional work in the area of retention could be developed by supporting and enabling staff working on retention activities, such as project officers, to engage with the pedagogy of retention and progression
- Where there are existing researchers in education and widening access with expertise (such as in retention, widening access, student transitions) they should be encouraged to work with practice focused staff to develop an institution's retention activities.

Across the sector there is repeated institutional emphasis on quantitative data derived through monitoring, with comparatively less emphasis or value attributed to qualitative data. This is reflected in the sector focus on enhancing the quality and accessibility of certain types of data, improving systems for data management and interrogation, as well as investing in senior staff able to develop strategic insights from this data. Furthermore, there is recognition that monitoring data is discussed within schools, departments, modules or working groups where mixed groups of staff and students can offer insights. There seems to be less robust use of qualitative data. The documentary evidence and interviews suggest a growth in the body of staff working to support retention, widening access and enhancement that may require support in developing approaches to evaluation.

- The collection, creation and use of qualitative data could be seen as more resource intensive, but there is merit in institutions recognising the potential to deepen and extend the institutional understanding of quantitative data through adopting more mixed methods approaches to informing and evaluating retention activities.
- There could be improved support for the development of qualitative, quantitative and mixed-method research skills amongst practitioners. This could involve bringing together staff with particular research skills with retention and widening access staff.
- Institutions could explore the potential use of evaluation templates. Templates along the lines of the QAA logic model (Student Transitions, 2016) could be used to encourage staff to think about different sources of evidence, indicators of success, and outcomes.
- A cross-sector retention toolkit could be developed by QAA Scotland to support staff, or teams of staff, in institutions to consider aims, evidence, indicators of success, and outcomes when designing retention projects.
- QAA Scotland could develop a dialogue sheet template to be used by institutions, whether at the institutional level or in departments/schools, to encourage practitioners to think about different types of evidence, project aims, measuring impacts/outcomes.

There is evidently a strong sector commitment to retention activities and many practice-focused initiatives. Institutional interviews recognised the cumulative and concurrent impact of these initiatives. Many institutions have a coordinated committee or working group that is tasked with leadership of retention activities, and there are frequently a number of initiatives running within departments and schools and concurrent activities across institutions. How can institutions develop institutional knowledge of these projects and draw together the knowledge from an overarching institutional perspective in terms of what is working?

- It is important for institutions to have a shared working definition of retention and progression. This should be clearly articulated across the institution and not restricted to retention steering groups or specific initiatives.
- Institutions and the sector should look to provide opportunities for sharing insights on expertise in the integration of, and interpretation of, quantitative and qualitative data - ethical issues, pedagogical issues, design issues. Potentially the current Enhancement Theme (2017-20) can frame activities or events that encourage deep and more effective learning from the rich sources of practice that exist across the sector.
- Institutions could explore the potential for an annual Retention Forum in which there could be sharing of practice or indeed scoping of key themes/workshops to identify areas of strategic focus. Such annual forums could be equivalent to learning and teaching conferences but perhaps with more focus on interrogation of data and pedagogy to plan interventions at different levels of the institution.
- Institutions could consider investing in shared open repositories for cross-institutional sharing. The specifics of institutional context can be a key determinant in shaping retention initiatives; an improved sharing of practice would enhance deepening institutional understanding and development of a more holistic picture.
- There should be sector and institutional support for the production and collection of detailed case studies that foreground the design of evaluation and the interpretation of quantitative and qualitative data. More significantly, encouraging staff to engage with scholarship and engagement with current retention debates in sector conferences would support the dissemination of good practice as well as deepening staff expertise in retention.
- Institutions could deepen and extend the institutional expertise on retention by supporting the development of long term, longitudinal approaches to retention data interrogation and project/intervention design.

Frequently retention initiatives are aimed at an additional enhancement, of study skills, support for academic transitions and induction, peer support and social community building, and broader student support. There are questions around the extent to which there is a broader 'teaching for retention' focus. There is limited evidence about the use of data to shape teaching practice for good retention:

- within taught programmes in educational development, such as PGCAP and PGCLTHE, institutions should consider incorporating retention pedagogy, developing evaluation approaches, and use of data and evidence to develop retention activities
- institutions could explore if there is scope to open such taught programmes to broader groups of staff including retention, enhancement and widening access officers.

Appendix 1: References and further reading

Introduction

The references underpin the report and further reading is provided in the websites and reports sections.

References

- Australian Government Department of Education and Training (2017) FINAL REPORT – Improving retention, completion and success in higher education Higher Education Standards Panel www.docs.education.gov.au/node/50816
- Barnes S, Macalpine, G, and Munro, A (2015) Track and Connect: Enhancing student retention and success at the University of Sydney: a practice report, *The International Journal of the First Year in Higher Education*, 6(1), 195–202.
- Bean, J P and Metzner, B S (1985) A conceptual model of non-traditional undergraduate student attrition, *Review of educational Research*, 55(4), 485–540.
- BIS (2014) National strategy for access and student success in higher education [Internet]. Department of Business, Innovation and Skills <https://webarchive.nationalarchives.gov.uk/20140713040905/www.gov.uk/government/publications/national-strategy-for-access-and-student-success>
- Colvin, C, Rogers, T, Wade, A, Dawson, S, Gasevic, D, Buckingham Shum, S, Nelson, K, Alexander, S, Lockyer, L, Kennedy, G, Corrin, L, & Fisher, J (2016). *Student retention and learning analytics: a snapshot of Australian practices and a framework for advancement*. Canberra, ACT: Australian Government Office for Learning and Teaching https://opus.lib.uts.edu.au/bitstream/10453/117173/1/AUS_OLT_LearningAnalytics_2016.pdf
- Commissioner for Fair Access (2018) *Discussion Paper: Retention, Outcomes and Destinations*, Edinburgh: Scottish Government www.gov.scot/Publications/2018/01/1674/2
- Commission on Widening Access (2016) *A Blueprint for Fairness: the final report of the commission for widening access*, Edinburgh: Scottish Government www.beta.gov.scot/publications/blueprint-fairness-final-report-commission-widening-access
- Contact North (2018) Ten successful ways institutions around the world are addressing the challenge of retention rates in online learning www.teachonline.ca/tools-trends/ten-successful-ways-institutions-around-world-are-addressing-challenge-retention-rates-online
- Crawford, C (2014) *Socio-economic differences in university outcomes in the UK: drop-out, degree completion and degree class*, IFS Working Paper W14/31. Institute of Fiscal Studies www.ifs.org.uk/publications/7420
- Croxford, L, Docherty, G, Gaukroger, R and Hood, K (2014) Widening participation at the University of Edinburgh: Contextual admissions, retention, and degree outcomes, *Scottish Affairs*, 23(2), 192–216.
- de Freitas, S, Gibson, D, Du Plessis, C, Halloran, P, Williams, E, Ambrose, M., Dunwell, I. and Arnab, S (2015) Foundations of dynamic learning analytics: using university student data to increase retention, *British Journal of Educational Technology*, 46(6), 1175–118.

- Ferguson, R and Clow, D (2017) 'Where is the evidence? A call to action for learning analytics', LAK '17 Proceedings of the Seventh International Learning Analytics & Knowledge Conference, ACM International Conference Proceeding Series, ACM, New York, pp. 56–65 [Online]. DOI: 10.1145/3027385.302739.
- Gaytan, J (2015) Comparing Faculty and Student Perceptions Regarding Factors That Affect Student Retention in Online Education, *American Journal of Distance Education*, 29:1, 56-6.
- Gilmour, Alison; MacLeod, Lucy; Naydenova, Galina; Borooowa, Avinash; Ward, Rebecca and Herodotou, Christothea (2017). Predictive modelling and student retention: A collaborative enhancement project. In: *3rd International Enhancement in Higher Education Conference*, 6-8 Jun 2017, Glasgow, U.
- Haddow, G (2013) Academic library use and student retention: A quantitative analysis. *Library & Information Science Research*, 35 (2), pp.127-13.
- Hewitt, L and Rose-Adams, J (2009) Access, retention and success: Aligning widening participation and equality strategies www.ecu.ac.uk/wp-content/uploads/external/access-retention-and-success-aligning-wp-and-e-d.pdf
- Hewitt, L and Rose-Adams, J (2013) What 'retention' means to me: The position of the adult learner in student retention. *Widening participation and lifelong learning*, 14(1), pp.146-164.
- Holland, N, Houghton, A M, Armstrong, J and Mashiter, C (2017) Accessing and assessing appropriate widening participation data: an exploration of how data are used and by whom, *Studies in Continuing Education*, 39(2), 214-233.
- Huang, Q, Nathawitharana, N, Ong, K L, Keller, S and Alahakoon, D (2019) Mind the Gap: From Analytics to Action in Student Retention, In *Applying Business Intelligence Initiatives in Healthcare and Organizational Settings* (218-236) IGI Global.
- Huijser, H, West, D and Heath, D (2016) The potential of learning analytics to systematically address diverse learning needs and improve student retention in Australian higher education, *Advances in SoTL*, 3(1)
- Jobe, R L , Spencer, M, Hinkle, J P and Kaplan, J A (2016) The first year: a cultural shift towards improving student progress, *Higher Learning Research Communications*, 6(1), 10-20
www.abacus.universidadeuropea.es/bitstream/handle/11268/5139/HLRC_2016_6_2.pdf?sequence=2
- Kadar-Sadat, G, Iannelli, C and Croxford, L (2016) Beyond access to HE: *Widening Access Initiatives and Student Retention in Scotland*. Edinburgh: Scottish Funding Council.
- Kift, S (2015) A decade of transition pedagogy: A quantum leap in conceptualising the first year experience. *HERDSA Review of Higher Education*, 2, pp.51-86.
- Lee, Y and Choi, J (2011) A review of online course dropout research: Implications for practice and future research. *Educational Technology Research and Development*, 59 (5), pp.593-618.
- MacAskill, K (2012) Student retention: a brief overview www.elrah.ac.uk/uploads/docs/K%20MacAskill%20-%20Student%20Retention%20Jun2012%20v2.pdf

- MacFarlane, K (2018) Higher education learner identity for successful student transitions, *Higher Education Research & Development*, 1-15.
- MacKay, J R, Langford, F and Waran, N (2016) Massive open online courses as a tool for global animal welfare education, *Journal of veterinary medical education*, 43(3), 287-301.
- Martzoukou, K and Kemp, V (2016) Nurturing supportive and engaging induction environments for distance-learning students, *Procedia-Social and Behavioral Sciences*, 228, 535-540.
- McKendry, S, Sanderson, B and Dobson, C, (2015) Focus West: A Successful Inter-Institutional, Multi-Agency Partnership to Improve School Pupils' Access to Higher Education, In *University Partnerships for Community and School System Development* (211-231). Emerald Group Publishing Limited.
- Office for Students (2018) *The Teaching Excellence and Student Outcomes Framework (TEF)*, A short guide to the 2018 awards www.officeforstudents.org.uk/media/5ff81204-14f4-4e71-8b48-91f46247c49b/tef_short_guide_2018.pdf.
- Prinsloo, P, Archer, E, Barnes, G, Chetty, Y and Van Zyl, D (2015) Big (ger) data as better data in open distance learning, *The International Review of Research in Open and Distributed Learning*, 16(1), 284 -305 www.irrodl.org/index.php/irrodl/article/viewFile/1948/3259
- Prinsloo, P (2017) Guidelines on the ethical use of student data: A draft narrative framework <https://www.siyaphumelela.org.za/documents/5a61c7b737ff5.pdf>
- Quinn, J, 2004. Understanding working-class 'drop-out' from higher education through a sociocultural lens: Cultural narratives and local contexts. *International Studies in Sociology of Education*, 14(1), pp.57-74.
- Quinn, J, 2005. Rethinking Working-class 'Drop Out' From University. *Widening Participation and Lifelong Learning*, 7(3), pp.1-5.
- Rienties, B, Boroowa, A, Cross, S, Kubiak, C, Mayles, K and Murphy, S, (2016) Analytics4Action evaluation framework: A review of evidence-based learning analytics interventions at the Open University UK, *Journal of Interactive Media in Education*, 2016 (1).
- Rodgers, S, Stenhouse, R, McCreddie, M and Small, P.(2013) Recruitment, selection and retention of nursing and midwifery students in Scottish Universities, *Nurse Education Today*, 33(11), 1301-1310.
- Sclater, N and Mullen, J (2017) Jisc briefing: Learning analytics and student success -assessing the evidence, Bristol: JISC www.repository.jisc.ac.uk/6560/1/learning-analytics_and_student_success.pdf
- Sclater, N (2017) *Learning Analytics Explained*, New York, Routledge.
- Simpson, O, 2003. *Student retention in online, open and distance learning*. New York, Routledge.
- Stone, C (2017) *Opportunity through Online Learning: Improving student access, participation and success in higher education*. The National Centre for Student Equity in Higher Education (NCSEHE). Curtin University: Perth www.ncsehe.edu.au/publications/opportunity-online-learning-improving-student-access-participation-success-higher-education

- Switzer, C, Nicol, E, Bertram, D, Kenny, M, Murray, M and Ferguson, N.(2016) Enhancing student transitions into engineering from underrepresented backgrounds, In *13th Annual Enhancement Themes Conference* www.strathprints.strath.ac.uk/57070
- Thomas, L, Hill, M., O'Mahony, J and Yorke, M (2017) Supporting student success: strategies for institutional change www.heacademy.ac.uk/knowledge-hub/supporting-student-success-strategies-institutional-change
- Tinto, V (1987) *Leaving college: Rethinking the causes and cures of student attrition*, Chicago: University of Chicago Press.
- Tucker, S J (2015) Transition management case study: creating a transition tool box. Enhancement and innovation in Higher Education, 9-11 June 2015, Glasgow.
- Weller, M, van Ameijde, J, and Cross, S (2018) Learning Design for Student Retention, JPAAP, 6 (2) <https://jpaap.napier.ac.uk/index.php/JPAAP/article/view/318>
- Welsh Assembly Government (2009) Student Withdrawal From Higher Education Cardiff: Welsh Assembly Government www.dera.ioe.ac.uk/10860/1/090908hereviewen.pdf
- West, D., Huijser, H, Heath, D, Lizzio, A, Toohey, D, Miles, C, Searle, B, & Bronnimann, J. (2016). Higher education teachers' experiences with learning analytics in relation to student retention, *Australasian Journal of Educational Technology*, 32(5), 48-60.
- Wilcox, P, Winn, S and Fyvie-Gauld, M (2005) 'It was nothing to do with the university, it was just the people': the role of social support in the first-year experience of higher education. *Studies in higher education*, 30(6), pp.707-722.
- Willis, J E, Slade, S and Prinsloo, P (2016) Ethical oversight of student data in learning analytics: a typology derived from a cross-continental, cross-institutional perspective, *Educational Technology Research and Development*, 64(5), 881-901.
- Wilson, A, Thompson, T L, Watson, C, Drew, V and Doyle, S (2017) Big data and learning analytics: Singular or plural? *First Monday*, 22(4).
- Woodfield, R (2014) Undergraduate retention and attainment across the disciplines, York: HEA www.heacademy.ac.uk/system/files/resources/undergraduate_retention_and_attainment_across_the_disciplines.pdf
- Yorke, M and Longden, B. 2008. The first-year experience of higher education in the UK. *York: Higher Education Academy*.
- Zawacki-Richter, O and Anderson, T eds. (2014) *Online distance education: Towards a research agenda*, Athabasca University Press.

Websites

Flinders University

Flinders University hosts an extensive set of good practice resources. Content on data is limited. A partial exception is the paper by Pearson and Naug (2013), which looks at identification of at-risk students and strategies to improve retention on first year health programmes. Students undertake diagnostic tests in week 1 of the first year and some are then identified for immediate tailored proactive support.

www.flinders.edu.au/transition/resources/attrition.cfm

The Safeguarding Student Learning Engagement Project

The project is a collaboration between eight Australian universities that began in 2010 funded by the Australian Learning and Teaching Council (ALTC). The Office for Learning and Teaching within the Australian Government Department of Education now oversees the research. The website includes useful good practice case studies that include consideration of monitoring and good use of data.

www.safeguardingstudentlearning.net/?page_id=64

Improving the Student Experience

The improving the student experience site provides links to useful resources, papers and reports. A paper on 'Enhancing access, retention, attainment and progression in higher education' reviews the literature showing demonstrable impact.

www.improvingthestudentexperience.com

Equality Challenge Unit (ECU)

This section of the ECU site has very useful guidance on collecting and using data.

www.ecu.ac.uk/guidance-resources/using-data-and-evidence

Predictive analytics

The Contact North website has succinct advice on using predictive analytics in a post entitled 'Five ways to use predictive analytics'.

www.teachonline.ca/tools-trends/how-use-technology-effectively/five-key-ways-use-predictive-analytics-successfully-address-high-drop-out-and-low

Ten facts about learning analytics

This Contact North briefing contains concise summaries of some of the important issues about learning analytics and some very useful links to examples and case studies.

www.teachonline.ca/sites/default/files/tools-trends/downloads/ten_facts_about_learning_analytics.pdf

Scottish Funding Council 2018/19 Outcome Agreements

The agreements provide a high-level overview of institutional approaches to retention. Documents are searchable PDFs

www.sfc.ac.uk/funding/outcome-agreements/outcome-agreements-listing.aspx

JISC learning analytics service

The service helps institutions put their data to work to tackle some of the big strategic challenges in further and higher education.

www.jisc.ac.uk/learning-analytics

Reports

Australian Government Department of Education and Training (2017) Final Report - Improving retention, completion and success in higher education

The report includes eighteen recommendations for the Australian sector. It emphasises the importance of shared definitions and the publication of data. Recommendation 5 is concerned with evidence-based practice.

www.docs.education.gov.au/node/50816

Department of Business, Innovation and Skills (BIS) (2014) National strategy for access and student success in higher education

The report's findings point to a complex mix of factors that lead to different continuation and attainment rates across disciplines. It provides an overview of disciplinary differences for those working and studying within HE, and suggests such differences constitute an important part of the HE landscape that we should seek to understand better if we are committed to the reality of 'widening access and achieving student success' across a 'diverse student body', as well as to the principle of supporting 'a vibrant and cohesive intellectual, social and cultural environment' in our universities.

<https://webarchive.nationalarchives.gov.uk/20140713040905/https://www.gov.uk/government/publications/national-strategy-for-access-and-student-success>

Transition, retention and attainment (Wales)

'The TRA-SEP (Wales) is an initiative across Wales supporting institutions in developing their strategies around student retention and success. The programme's key themes of the student experience, the curriculum, and the use, sharing and developing of data are aimed at developing holistic approaches to student support across the student lifecycle; developing and sharing best use of learning analytics, and designing approaches to the curriculum that strengthen engagement and promotes retention.' There are some useful case studies here with a strong focus on using data

www.heacademy.ac.uk/knowledge-hub/transition-retention-and-attainment-wales

What Works? Student Retention and Success

This report builds on earlier work published in 2012. It provides a wide reaching and comprehensive view of evidence for effective practice in retention drawing on examples, case studies and data from across the UK.

www.heacademy.ac.uk/system/files/hub/download/what_works_2_-_full_report.pdf

Opportunity Through Online Learning: Improving Student Access, Participation and Success in Higher Education. NCSEHE Equity Fellowship Final Report

These reports by Cathy Stone are distinctive in being concerned with retention of online and distance learning students. The link provides access to the full report, an executive summary and national guidelines (Australia) for improving student outcomes in online learning.

www.ncsehe.edu.au/publications/opportunity-online-learning-improving-student-access-participation-success-higher-education

Designing for Student Retention. The ICEBERG model and key design tips. Open University, Institute for Educational Technology, Quality Enhancement Report Series Issue No 2106/4

This report is written from an online and distance perspective and focuses on good practice for learning design. It includes seven key design principles and actions tips for designing for student retention.

Report sits behind a password but a version of it is available at:

www.jpaaap.napier.ac.uk/index.php/JPAAP/article/view/318

Learning Analytics and Enhancement: a discussion paper

The paper has been written for institutional managers and academics who are using, or wish to use, learning analytics to support the enhancement of the student experience. The aim of the paper is to help inform conversations with learning analytics experts in their institutions about some of the issues and challenges that are emerging from the learning analytics research field that may impact on institutional activities. An overarching trend is the need to increase capacity for institutional staff and students to engage with ethics, design, understanding and using learning analytics. Where this has previously been the concern of a relatively small number of experts, it is becoming increasingly important that a broader community is equipped to participate in the conversation. The paper is structured around an adaptation of Clow's 2012 cycle of learning analytics, and includes four key sections:

- data creation and collection
- working with and understanding data
- using data to enhance the student experience
- implementing learning analytics in institutions.

While the paper can be read in its entirety, each section is also intended to be a standalone text that can be used to stimulate discussion. Key literature is highlighted, and sections are illustrated with examples of practice.

More examples of practice, including useful tools and case studies, are captured in two appendices. Five 'Hot Topics' are identified: dashboard design, predicting the future, data capability, evaluating interventions, and linking learning design and learning analytics. Again, these may be used as standalone texts.

www.enhancementthemes.ac.uk/current-enhancement-theme/exploring-learning-analytics/learning-analytics-review

Appendix 2: Definitions and terminology

Throughout this report we refer to retention and progression. This is the terminology used by the Scottish Funding Council (SFC) in recent years and it has been largely adopted by Scottish institutions. The key retention metric measures progression from year 1 to year 2 of an undergraduate degree. The SFC requires Scottish institutions to report on, ‘The number and proportion of full-time first year Scottish-domiciled entrants from different protected characteristic groups returning to study in year two’ (National Measure 5).

The use of the term retention is by no means universal. The Higher Education Statistics Agency’s (HESA) performance indicators are framed in terms of non-continuation, while the metrics used in the Teaching Excellence and Student Outcomes Framework (TEF) (which only a minority of Scottish HEIs are signed up to) speaks of continuation. Internationally, and in the wider literature, a range of other terms are used. On the positive end of the spectrum, persistence - viewed from the other direction, attrition or drop out. Attrition is commonly used in the Australian literature.

Narrow, year-based definitions can be unhelpful if retention and progression is understood as a student reaching a successful outcome to their studies. Such definitions assume implicitly that students follow a linear and continuous path through school, (college), university and into employment. Metrics based on these assumptions may not capture the experience of students on flexible and part-time programmes. As a result, we argue that all retention studies need to be interpreted with caution. In a review of thirty-five empirical studies of drop out from online courses Lee and Choi (2011) found that thirteen did not provide a clear definition of what they meant by retention.

Appendix 3: Literature review methodology

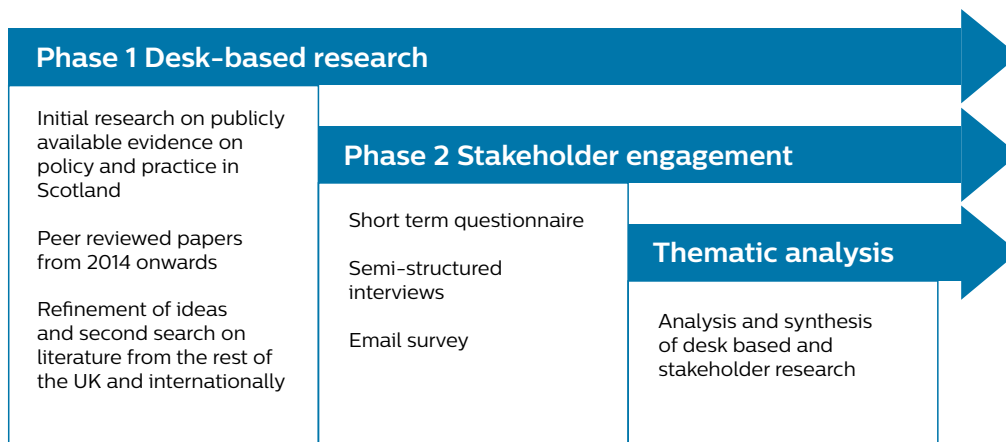


Figure 5: Outline of research method

Figure 5 outlines the method we used to undertake the research. Phase 1 of the research entailed desk-based research using publicly available evidence on policy and practice in Scotland. Principal sources included the Outcome Agreements (currently run on a three-year cycle with updates on an annual basis) between every Scottish HEI and the Scottish Funding Council; the Enhancement Led Institutional Review (ELIR) technical and outcome reports from the ELIR 2 and ELIR 3 cycles; institutional reports from the QAA managed Enhancement Theme of Student Transitions (2014-17); contributions made by practitioners at the Enhancement Themes conferences; and project reports from a variety of sources.

In addition, we looked for relevant peer reviewed papers. The academic literature on retention and progression is extensive. To narrow the frame, we undertook keyword searches (retention and its synonyms, progression, data and evidence), singly and in combination with Scotland and the names of Scottish HEIs, to find relevant peer reviewed research originating from researchers and practitioners in Scottish higher education. In view of the time available, and because we were particularly interested in contemporary developments, we focused on sources from 2014 or later.

We reviewed and analysed this material to identify themes relevant to the project. Having identified issues and themes from the Scottish context we then carried out a second search of the academic literature from the rest of the UK and internationally, through which we refined our themes and noted ideas, approaches and good practice that might be useful to Scottish practitioners and policy makers.

Phase 2 involved semi-structured interviews (see Appendix 4) with staff leading on retention at Scottish HEIs. Staff were identified with the help of the institutional representatives on the Enhancement Theme Leadership Group. Participants were asked to complete a short item questionnaire (Appendix 5) prior to interview. We obtained responses and held interviews with twelve out of the nineteen Scottish HEIs. We also interviewed a member of the SFC Outcome Agreement team to obtain their cross-sectoral perspective. In addition, we sent a short email survey to members of the Scottish Higher Education Developers Network. This received two responses.

The reporting that follows is a result of a thematic analysis of data from both phases of our inquiry. The analysis: identifies the importance of retention for Scottish institutions; highlights key features of retention in the Scottish sector; and examines the Scottish sector in a wider geographical context.

Appendix 4: Interview schedule

We would like to explore the questions below in an interview that will last for a maximum of forty minutes. We recognise that it's quite a long list but not all of the questions will be relevant or have the same weight in every institution. We hope to have a conversation that enables us to explore the issues in depth.

1. What are the key drivers for engagement with retention work in your institution? How do you define retention?
2. Do you feel confident that staff working on retention and progression in your institution have adequate evidence to devise effective interventions?
3. At what level or levels of the institution is retention and progression data monitored?
4. How does your institution know how well retention and progression interventions are working - how is the effectiveness of retention and progression work evaluated?
5. What are the main challenges for your institution in designing retention initiatives? Do you have all the data you need and in the right form?
6. Have you taken particular initiatives in collecting evidence or making retention interventions for students with protected characteristics?
7. To what extent is teaching staff involved in retention activity? Can you give examples? How is this supported?
8. To what extent are students involved in retention activity? Can you give examples? How is this supported?
9. Are you using learning analytics? What are the challenges in developing the use of learning analytics in your institution? Do you have examples of ways in which learning analytics are being used to support retention and progression.
10. Who has access to learning analytics data?
11. Has the introduction of the Teaching Excellence Framework influenced the way you think about policy and practice on retention and the way you use data and evidence?
12. Where does oversight of retention policy lie in your institution? To what extent is it integrated with widening participation? Is there a link to policy on equality and diversity?
13. Do you feel part of a community of practice around the use of data and evidence in retention? In your institution? In the Scottish sector? Can you tell us a bit more about this and how it works?

Appendix 5: Initial questionnaire

It would be helpful if you could respond to these questions by email prior to the interview.

1. What are your institution's current priorities in working on retention and progression?

Please provide a brief summary or alternatively copies of any relevant documents that provide this information

2. The focus of our investigation is on the use of data and evidence. We are interested in good practice case studies that illustrate a systematic use of evidence/data to identify, monitor and evaluate retention interventions

Are there examples from your institution that you would be happy to share? A brief description or a link to a document, paper or web post would be helpful and we could follow this up in our interview

Appendix 6: List of Scottish HEIs that participated in project interviews

The University of Aberdeen
Abertay University
The University of Dundee
The University of Edinburgh
Glasgow Caledonian University
The University of the Highlands and Islands
The Open University in Scotland
Queen Margaret University
Napier University, Edinburgh
The Robert Gordon's University
Scotland's Rural College
The University of Strathclyde



© The Quality Assurance Agency for Higher Education 2019
Registered charity numbers 1062746 and SC037786
www.qaa.ac.uk/scotland
www.enhancementthemes.ac.uk