



Enhancing access, retention, attainment and progression in higher education

A review of the literature showing demonstrable
impact

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Executive summary

This report presents a synthesis of literature – published since 2008 – that demonstrates significant impact in each of the key student outcomes of access, retention, attainment, and progression. This builds on a number of key Higher Education Academy (HEA) publications or projects from the past five years that have addressed issues associated with these four outcomes (Jones 2008; Thomas 2012; Stevenson 2012; Evans 2015; Woodfield 2014; Woodfield and O' Mahony 2016; Hanesworth 2016).

In an era of increasing fees and aspirations to widen participation in UK higher education (HE), understanding what works to improve outcomes for different groups of students is vital (Harrison and Hatt 2012). Specifically, stakeholders are interested in four key moments in the student life-cycle: **access** to HE (the extent to which groups can gain entrance to different types of higher education institution); **retention** (participants' likelihood of continuing or withdrawing from study); **attainment** (the extent to which students are enabled to fulfil their potential; sometimes discussed in terms of achieving a 2.1 or first class degree); and **progression** (successful transitions within the programme of study and afterwards to employment or further study) (HEA 2015).

This review locates and reviews a representative collection of empirical research that evidences *demonstrable impact* relating to each outcome, from which broad observations can be drawn about what works. The volume of material visited precluded in-depth discussion of each source; nonetheless, it is hoped that the review can serve a helpful function in signposting readers to relevant material, which they might wish to consult directly.

Access

Much of the literature sourced for this chapter comes from the US, which has a long history of tuition fees, access challenges, and examples of dedicated support from which to draw observations. Interventions that showed demonstrable impact are

categorised in three key areas: financial interventions, support programmes, and modification of the admissions and application process.

Retention

The likelihood of a student remaining in university can be attributed to a number of factors beyond their academic ability when they enter their first year. Again, much of the literature is sourced from the US, where changing populations and immigration; low graduation rates among specific demographic groups; changes to educational funding; and the introduction of a complex raft of student loans, fees, and financial programmes, all contribute towards making retention a pressing topic. Three key areas of evidence were found; financial interventions, timely and targeted programmes (in first year, summer bridge, etc.), and curricular and pedagogical interventions.

Attainment

Often termed the attainment, achievement, or education 'gap', the difference in attainment scores and graduation rates between traditional and non-traditional¹ students is an acknowledged issue in HE and of increasing interest given the widening participation of traditionally excluded groups. Interventions designed to increase student attainment and completion of degrees must consider those students most at risk of failing. Surprisingly, despite the solid literature base describing the problems facing minority students, we found few studies that directly targeted the attainment of specific ethnic groups in the US, the UK, or elsewhere. Evidence of impact has accrued in three key areas of intervention: general structural and procedural changes; pedagogical interventions; and provision of study support packages.

Progression

Since the last HEA review on student retention and success (Jones 2008), changes within and beyond higher education have heightened attention to student progression. The growing employability agenda has seen institutions develop concerted efforts to support progression, even in domains of historic resistance, such as research-intensive institutions (e.g. Baker and Henson 2010). The literature on this topic has been divided into four key areas, which reflect different ways in which student progression can be supported: careers service provision; progression within the curriculum; progression into specific pathways; and placements and professional experiences.

Recommendations

¹ As defined in a specific national context

The sources that were reviewed provide details of a diverse range of initiatives targeting one or more of the student outcomes. In addition, there is likely to be substantial pertinent literature, which was not identified by the specific search strategy used. Distilling a sizeable and varied evidence base into core recommendations is challenging. The presiding principle has been to establish a recommendation where there appears to be a 'critical mass' of relevant evidence. Where specific initiatives or approaches are not included this does not infer that they lack rigour, interest or promise; rather, additional confirmatory research would be welcomed in these domains.

The recommendations below have been organised into headings that relate to different stakeholders. Optimising student outcomes is, however, a complex goal. As such, particular recommendations that are here assigned to one set of stakeholders may, in practice, be the shared responsibility of various parties, including students themselves.

Frontline educators might:

- > explore how to best integrate emerging analytics platforms with their role as personal tutors. Learning analytics is emblematic of the new holistic approaches to student retention and is likely to have profound implications for personal tutoring. Tutors are likely to require further training and support around these applications to recognise when difficulties arise with their students, which may endanger their attainment and/or retention;
- > through curriculum design, ensure that there are early opportunities for assessment and feedback, which establish a culture of academic achievement and 'success'. This might enhance retention statistics. In parallel, dedicated academic 'success' programmes, which may sit outside the formal curriculum, could be of benefit to certain groups of students; examples from the US provide helpful points of reference (see McGrath and Burd 2012; Barraza 2012; Malik 2011; Smith 2010);
- > encourage more student engagement with digital learning environments and social media applications; broadly speaking, evidence indicates potential benefits in terms of raising attainment levels;
- > embed within courses professional experiences (e.g. work placements) and applied assignments, which enhance students' skills and preparedness for progression into employment and/or further study.

Higher education institutions might:

- > consider students' background characteristics (e.g. socio-economic status) to provide adjusted admissions criteria. Institutions should be mindful that with finite availability of places there may be 'losers' from such recruitment practices (e.g. applicants from more privileged backgrounds) and that crude efforts to manipulate admissions criteria may be less effective than nuanced approaches in addressing patterns of access to HE (see Pastine and Pastine 2012);

- adopt a strategic focus to improve student engagement. Interventions must consider how academic achievement can be enhanced in the first year, as attainment and retention outcomes are considered to be more favourable for those with higher academic achievement in the first year (Clery and Topper 2010);
- recognise that holistic programmes, which entail a raft of interventions, have the best evidence of impact on retention (e.g. CUNY's Accelerated Study in Associated Programs: Scrivener *et al.* 2015). Certain interventions are likely to be effective in addressing retention rates at different key 'moments' in a student's lifecycle;
- maintain investment in counselling services, as access to these appears important in supporting students to make a successful transition into higher education. Peer counselling and peer mentoring programmes are also worthy of further investigation;
- maintain on-campus initiatives focused on progression. There is a role here for institutional careers services, which appear effective in supporting students with specific tasks (e.g. job searching: Carroll and Tani 2014);
- devise a strategy for systemic change to address issues of access, retention, attainment, and progression that incorporates a flexible vision, senior leadership, clear communication, incentives, and professional development (see Grossman *et al.* 2015 for further details);
- commit to gathering large scale institutional and learning analytics (see Chapters 4 and 5), with the data used to inform interventions that are evidence-based, accountable, value-for-money, and targeted to the *access*, retention, attainment, and progression of disadvantaged students.
- adopt a joined-up 'pipeline' or student life-cycle approach, which seeks out the intricate and multifaceted connections between the outcomes of access, retention, attainment, and progression, which can be jointly impacted by the same individual intervention. More data is required regarding students' journeys and where the key points of challenge lie.

Higher education policy makers might:

- explore models in which students' progression through their degree and acquisition of credits may be hastened, so as to enhance retention. Initiatives such as summer schools may be helpful here in maintaining study momentum;
- support programmes that raise interest, aspiration and readiness for post-secondary study. Broadly speaking, evidence suggests associated benefits in terms of access and retention. In addition to those which occur shortly before entry to higher education, evidence – much of it from the US – show the efficacy of schemes which begin in secondary and even primary-aged children. In a UK context consideration might be given to lowering the age at which interventions begin. Although access-focused UK initiatives such as Aimhigher have allowed for creativity in how they are run at local level, more tightly specified interventions may address the documented challenges in evaluating diverse initiatives;

- trial, in a UK context, forms of financial and/or non-financial support, where eligibility is in part contingent upon student engagement (e.g. with current secondary studies or dedicated preparatory activities).

Higher education researchers might:

- closely monitor and investigate the costs and financial support surrounding HE participation, to augment our incomplete understanding of their impact on access and retention. This will be challenging in a highly complex environment, where institutions currently offer individualistic support packages, and the forthcoming Teaching Excellence Framework (TEF) (BIS 2016) heralds differential institutional fees;
- deepen understanding of the social and emotional landscape of students, which is important to add nuance and depth to interventions targeting the four outcomes. The majority of the studies included here have been quantitative or mixed methods approaches, but qualitative studies have a valuable role to play in fleshing out the lived experiences of students in higher education, particularly in terms of motivation and engagement. The small but growing literature in this sub-domain makes essential reading (see Ch. 4);
- extend progression research beyond immediate and short term evaluations of students' confidence and preparedness for employment/further study, and track their actual trajectories over the medium and long-term;
- recognise the value of holistic programmes that comprise multiple interventions, while embracing the challenge to tease out respective effects of individual components, which could help optimise future intervention design. While this review took an applied perspective, any research that helps develop compelling theory regarding the four outcomes is welcome;
- ensure that intervention projects embed research and evaluation from the start. Retrospective, post-facto evaluations have their place but hold less weight than those studies that utilise a more experimental design. Moreover, our own experiences of conducting the review are informative for others interested in summarising evidence. We may have missed examples of successful interventions, simply by virtue of titling that was not picked up by our search strategy. We would emphasise the importance of clear titles and keywords, as well as straightforward abstracts and accessible statistical discussions, given that those who may seek to operationalise initiatives within HE settings may not be research trained;
- employ standardised evaluation methods (e.g. questionnaire instruments) when performing primary research, so as to increase the feasibility of meta-analyses. These would be welcomed in areas such as pedagogy, curriculum, extra-curricular activities, student support, and counselling.

1. Introduction

This report, commissioned by the Higher Education Academy (HEA), presents a synthesis of literature published since 2008 that demonstrates impact in each of the four key student outcomes of access, retention, attainment, and progression. This builds on a number of key HEA publications or projects from the past five years that have addressed issues associated with these four outcomes: these include Jones' (2008) review of literature on student retention and success; Evans' (2015) overview of high-impact pedagogies across a range of disciplines that have led to enhanced student engagement; Woodfield's (2014) research on retention across the disciplines; Woodfield and O' Mahony's (2016) second phase report on retention (introducing the supplementary discipline-based retention reports);² Hanesworth's (2016) exploration of gender imbalance in disciplines in Scotland; Stevenson's research into black and minority ethnic student attainment, and Thomas' (2012) report of building student engagement and belonging. These publications provide important context to the interventions included in this current review.

In an era of increasing fees and aspirations to widen participation in UK higher education (HE), understanding 'what works' for different groups of students is vital (Harrison and Hatt 2012). Specifically, stakeholders are interested in **access** to HE (the extent to which groups can gain entrance to different types of higher education institution); retention (participants' likelihood of continuing or withdrawing from study); attainment (the extent to which students are enabled to fulfil their potential; sometimes discussed in terms of achieving a 2.1 or first class degree); and **progression** (successful transitions within the programme of study and afterwards to employment or further study) (HEA 2015). These 'outcomes' represent four key moments or stages in the student 'lifecycle'. In return for charging higher fees, the 2004 Higher Education Act obliged universities to submit strategies for ensuring inclusivity to the newly formed Office for Fair Access (OFFA). The name of this agency alludes to the strong initial focus on access issues. With time, however, evidence has confirmed that patterns of inequality occur throughout the lifecycle.

Closely entwined with the student lifecycle is the widening participation (WP) agenda, which seeks to ensure that the benefits of HE study are enjoyed by a broad range of groups, including those with traditionally low engagement, and that social mobility is facilitated (Cabinet Office 2012). The 'holy grail' is a comprehensive account of what measures are effective at each stage of the lifecycle, for different WP groups, that is, mature, disabled, black and ethnic minority (BME) students, low income groups, students who are the 'first generation' in their family to participate in

² Supplementary HEA reports include: Art and Design (Finnigan and Richards 2016); Computer Science (Gordon 2016); Business and Management (Hibbert 2016); Veterinary medical education (Jackson and Armitage-Chan 2016); Philosophy and Religious Studies (Mossley 2016); and Education (Srivastava 2016).

HE, and care leavers. Historically, this goal has been difficult to achieve, owing to disparities in the volume of evidence available for respective groups at different stages of the lifecycle. With the evidence-base maturing, a fresh review is appropriate, building on the HEA's (2015) existing framework in this area. Naturally, interest in student outcomes is not restricted to the UK and, accordingly, this review captures seminal international research that could benefit UK stakeholders.

2. Methodology

Given the broad scope of this review, which spans four different outcomes (access, retention, attainment, and progression), the goal was not to provide an exhaustive review of all relevant literature. Rather, the objective was to locate a representative collection of empirical research relating to each outcome, from which broad observations could be drawn about what works. In the interests of feasibility and continuity from the last HEA review in this area (Jones 2008), a data range of 2009-2016 inclusive was used. The volume of material visited precludes in-depth discussion of each source. Nonetheless, it is hoped that the review can serve a helpful function in signposting readers to relevant material, which they might wish to consult directly.

2.1 Sources

Via EBSCO Information Services, three different databases were searched – British Education Index; Education Resources Information Center (ERIC); and HW Wilson – providing access to sources from around the globe.³ Appendix 1 shows precise details of the search terms used for each of the outcomes and the filtering options that were exploited within EBSCO. For each outcome, the identified sources were then submitted to members of the research team for a ‘first sift’, as described below.

2.2 Inclusion criteria

In keeping with the brief of identifying initiatives with demonstrable impact, sources were included where they reported on concerted efforts to influence one or more outcome. There was less focus on relatively unmodifiable factors (e.g. gender, ethnicity) and their association with these outcomes. Nonetheless, as appropriate, these factors are discussed where they featured as co-variables in an investigation of a clearly defined intervention. Our approach accommodated both quantitative and qualitative research, as well as a host of experimental designs, for example, randomised control trials through to cross-sectional comparisons. Sources were limited to those relating to *higher* education.

2.3 Validity of coding

In the early stages of the data retrieval, team members independently coded a sub-sample of search results to engage in appropriate calibration. With confidence and accuracy established across the research team, the four outcomes were divided between members who, as part of a ‘first sift’, judged the eligibility of each source for inclusion. Regular conference meetings were held between team members and any coding decisions that were problematic were resolved, in what was referred to

³ <https://www.ebscohost.com/>

as the 'second sift' (see Appendix 1). Having made the decision on eligibility, team members also coded sources in respect to the variables in the appended database; some relate to characteristics of the intervention itself – that is, country, type of higher education institution (HEI) – whereas others concern methodological aspects of the evaluation (e.g. sample size).

2.4 Analysis of search results

Appendix 1 shows the proportion of eligible sources that were easily accessible in full-text format through open channels or institutional subscription (~72%). This was deemed adequate to allow a representative range of evidence. A separate list shows those studies that survived the first and second sifts but which were inaccessible; these may provide valuable additional reading. Alongside the qualifying sources from the data searches, meetings with the Principal Investigator and Executive Advisor were used to enquire about any additional relevant material, as were interactions with professional groups⁴.

3. Access

3.1 Overview

Substantial evidence continues to emerge from around the world regarding patterns of access to higher education. A recent analysis found divergence among UK HEIs (Havergal 2016). Across the sector as a whole, the representation of students whose parents were unemployed or in lower-level jobs rose from 28.2% to 33% in the decade between 2004-05 and 2014-15. Among the Russell Group, however, there was a smaller rise (19.5% to 20.8%), with the proportion of these students declining in several institutions.

Since the last review (Jones 2008), sufficient time has passed to interpret the effects of significant policy changes. In the UK, this includes the 2004 Higher Education Act (which incorporated the formation of OFFA); transition from the broad-based 'Aimhigher' programme for widening access to the short-lived National Scholarship Programme (NSP); and early findings regarding £9,000 per annum tuition fees. It is, perhaps, too early to assess other changes such as the lifting of student number controls (Hillman *et al.* 2014). Helpfully, evidence is also available from beyond the

⁴ Note on source of literature: Consistent with earlier investigators in this field (Canning 2007; Evans 2015), we note that much of the literature drawn upon in this review originates from the US. In subsequent chapters efforts have been made to discuss how findings might relate to the UK context. Nonetheless, it is important to be mindful of differences, both in terms of the respective higher education structures themselves, as well as how important variables are conceptualised. For example, with regard to ethnicity, investigators tend to utilise categories as appropriate to their immediate context, which may not apply elsewhere (e.g. Latino/a in the US). Meanwhile, some US research focuses on raw income, whereas some UK investigators prefer measures of socio-economic status, which includes details of parental occupation.

UK, especially the US that has a long history of tuition fees and dedicated access support from which to draw observations.

The access agenda remains pivotal to HE policy. The recent UK government white paper reasserted aspirations for widening access including a doubling of HE participation among those from disadvantaged backgrounds by 2020, alongside an additional target for BME students (BIS 2016). Nonetheless, such commitment is tempered by realities as to how such HE opportunities will be funded, although the white paper does pave the way for an increase in tuition fees at well-performing HEIs. Against this backdrop there will continue to be intense scrutiny on the extent to which HE participation reflects the demographic profile of wider society.

3.2 Assessment of evidence

Interventions in the three key areas of finance, support programmes, and the admissions and application process are explored below.

3.3 Finance

3.3.1 Financial aid

The US has a long tradition of financial support targeting access to HE (for a useful historical summary see Davis *et al.* 2013). Indeed, Jerrim (2013) notes that while the 'sticker price' might be higher in the US than the UK, bursary support might, in net terms, make it cheaper. Initiatives commonly engage middle/high school students long before the point of application, which is when many UK approaches commence. For example, American finance-based interventions begin in grades six (ages 11-12, Stransky and Good 2009), eight (ages 13-14, Harris *et al.* 2014) and nine (ages 14-15, Gonzalez *et al.* 2013). The typical approach is to provide support around adaptive study and preparation behaviours via, for example: summer schools, Mathematics and writing labs, and workshops on transferable skills such as time management and mentoring. To activate the release of funds towards a HE course, participants must engage with these activities and meet targets, which can be academic (e.g. maintain a certain GPA) or wider (e.g. school attendance or avoiding substance misuse and criminal activities). These non-academic expectations are seen as addressing community concerns such as crime and anti-social behaviour (e.g. Berumen *et al.* 2015; Harris *et al.* 2014). In the UK, funding is seldom contingent on student performance and/or engagement. In the US support activities are often opened up to the wider school community, including those who do not qualify for the final financial aid (Berumen *et al.* 2015; Myers *et al.* 2010), thus, initiatives often have wider-reaching impacts than the simple award of funds to the most needy.

Beneficiaries of US programmes will commonly receive funding for up to four (Harris *et al.* 2014) or five years (Myers *et al.* 2010) at a public institution, or receive a smaller contribution towards study at a private institution. On arrival in HE, however,

recipients may still experience a considerable shortfall between income and outgoings (Kezar 2009). Nonetheless, there is evidence that such schemes can impact on access to HE. During the New Haven Promise scheme, Gonzalez *et al.* (2013) observed a small increase in post-secondary enrolment among participants, including those who fell short of the criteria for financial support. Meanwhile, Myers *et al.* (2010) reports on the Washington State Achievers programme, which targeted 16 high schools with a high concentration of less privileged students. A support programme, coupled with the promise of financial aid, was found to lure all but a few participating students into enrolment in some form of post-secondary education. Among scheme participants who did not qualify for financial aid, post-secondary attendance (47.3%) was similar to non-participants (46.9%). The former group did, however, show greater likelihood of enrolling in a more prestigious four-year HEI (29.7% versus 16.6%). This finding suggests additive value of multi-faceted interventions, combining both finance and non-financial support.

There are, however, issues with the 'student contract' model described. Harris *et al.* (2014) re-assessed the 50-year old 'Upward Bound' college access initiative in the US and document how the operationalisation of eligibility criteria produced 'drift' from the initial aim of widening access. With administrators excluding many students from under-represented groups for falling foul of behavioural criteria, the programme has come to serve students whose parents already have sound educational and financial profiles. However, for students who would be excluded ordinarily, the scheme was (cost-) effective, raising the probability of graduating high school and gaining a college credential by six to 10 percentage points. Eligibility criteria are clearly of fundamental significance in this process.

Financial aid is usually either needs-based, merit-based, or a hybrid (Vaade 2010). In rare instances it may be truly open to all applicants irrespective of these factors (e.g. Pluhta and Penny 2013). It is unclear if merit-based approaches go beyond encouraging access *per se* to narrow inequalities. For example, Gonzalez *et al.* (2013) found that an increase in college enrolment was consistent across demographic groups. The typical mechanisms in merit-based approaches might also be questioned: not only is it difficult to maintain a high GPA score (Gonzalez *et al.* 2013), certain non-cognitive skills have been reported as better predicting ultimate college success (Myers *et al.* 2010). Proponents of merit-based approaches would counter that measuring and incentivising academic progress might help aid participants, many of whom are underprepared for HE (NCES 2003). US data suggest that this is a considerable issue, with only 23% of high school graduates sufficiently developed in the core skills of English, Maths, Reading and Science (ACT 2009). In theory, needs-based and hybrid approaches might help narrow inequalities, as they expressly consider participants' backgrounds, most commonly socio-economic status. For example, Indiana's Twenty-First Century Scholars Programme requires participants to either have an income within certain thresholds based on household size, to be a ward of court, or to be in care (Stransky and Good 2009). Similarly, in the UK, the single crosscutting requirement of the National

Scholarship Programme (NSP) was that applicants' family income was less than £25,000 per annum. Individual-level assessment of eligibility, however, implies a potential bureaucratic load. Some schemes have preferred to target financial aid at specific schools with a known concentration of underprivileged students (e.g. Gonzalez *et al.* 2013; Myers *et al.* 2010). Meanwhile, during the NSP several HEIs used participation of local areas (POLAR) as an additional criterion. This is a measure of historical HE participation among those residing in a given catchment. Such geographical proxies have attracted criticism, as they may inappropriately group people from heterogeneous backgrounds (Harrison and McCaig 2015).

There are considerable historic data within the US concerning different approaches to financial support. Findings are, nonetheless, uncertain. Assessing a needs-based scheme in Florida, Castleman and Long (2013) calculated that each \$1,000 of aid increased the post-secondary enrolment rate by 2.5%. There were even larger impacts on retention, serving as a useful reminder that financial interventions might need to be judged on their impact across multiple outcomes. Conversely, using 20-year data from all US states, Toutkoushian and Hillman (2012) found that enrolment rates were enhanced by appropriations (i.e. state contributions to HEI budgets) and even more so by merit-based schemes, with no statistically significant effects for needs-based schemes. It is notable that both studies were principally concerned with crude enrolment rates and do not stratify impact by population subgroups. Such fine-grained analysis would appear important to make full sense of participation trends. Dias *et al.* (2011) offers, as a cautionary example, the increase in HE participation in Portugal, which could be traced to the feminisation of HE by women from middle and upper-class families, rather than progress among less privileged groups. Several authors acknowledge that discussions about needs-based versus merit-based opportunities can become ideological (Toutkoushian and Hillman 2012; McCaig and Bowers-Brown 2007). Central to the debate is the question of what function HE serves. Here, Kotzee and Martin (2013) provide a useful taxonomy that contrasts a 'tournament' model with that of a social 'remedy'. Some models of financial support explicitly seek to maintain student engagement. For example, in the US a number of schemes have paid regular (e.g. monthly) stipends on the expectation that attendance at classes is maintained (See *et al.* 2012). There appears to be little empirical testing of such approaches in a UK context.

3.3.2 Tuition fees

If evidence around the efficacy of financial support in the US is inconsistent, in the UK it is incomplete (Dearden *et al.* 2014). Two studies used historic data to chart associations between university admissions and means-tested grants that were once central to the British HE sector. In one case, each £1,000 increase in grant was associated with a 3.95% increase in HE participation among students from low-income families (Dearden *et al.* 2014). Financial intervention did not, however, fully address differences in participation between those from different backgrounds. The other study considered grants and tuition fees, using 16 years of data (Dearden *et al.* 2011). Again, grants had a positive association with participation (a 2.6%

increase for each £1,000). Interestingly, there was a larger negative association between participation and tuition fees (a 3.9% decrease for each £1,000 of fees). Similarly, Smith et al. (2015) report that a 10% increase in application fees corresponds with a 1.1% decrease in enrolment among ethnic minorities. A complex interplay appears to be in place, whereby the effect of granting aid is not the direct opposite of charging fees. Psychological factors such as debt aversion may be relevant. Consequently, despite early evidence that £9,000 fees have not impacted on applications on the predicted scale (ICOF 2014; UCAS 2014) it is, in an unprecedented fees environment, difficult to predict the effects of financial aid.

Fee regimes can also have nuanced effects on the composition of the student body. For example, Lai (2012 n.p.) explains that, "it's very advantageous for elite schools to admit international students because the bulk of them can pay full tuition." Indeed, Douglass (2014) reports how concerted efforts to recruit international students at the University of California, Berkeley have produced a highly diverse student body. There are parallels here with the pursuit of non-EU students by UK HEIs. Douglass (2014) describes several challenges, including a "balkanisation" of students as they cluster in insular national groups. There may also be reduced access opportunities for local domestic students (Beyakov *et al.* 2009). For example, while Californian law guarantees HE places to qualifying individuals, this does not extend to a campus of their choice (Douglass 2014) and studying close to the family home can be important, especially for some under-represented groups (e.g. ethnic minorities). In contrast, internationalisation of the study body might afford students valuable learning experiences, such as working alongside diverse peers and gaining preparation for a globalised labour market.

3.3.3 The UK's National Scholarship Programme (NSP)

The most significant financial intervention of recent times in the UK is the National Scholarship Programme (NSP), which accepted applicants from 2011-12 to 2014-15 (McCaig 2016). This government-backed scheme awarded £3,000 worth of support for low-income first year undergraduates, comprising a maximum of £1,000 cash with the remainder made up of fee waivers, discounted accommodation, etc. Given that students can experience immediate liquidity problems (Kezar 2009) the motivational value of fee waivers in a deferred fee systems such as the UK's might be questioned. The NSP compelled HEIs to match-fund state contributions, albeit with choice as to how the additional monies were spent. HEIs also had freedom to exert additional eligibility criteria with some prioritising applicants for under-filled programmes, care-leavers, and those from low participation neighbourhoods (POLAR). The variance in how NSP operated between HEIs complicates evaluation. Nonetheless, at a macro level, McCaig (2016) notes stagnation in overall HE participation. On closer examination, the author was struck by institutional behaviours; several post-92 universities chose to fund continued support of the initial first year recipients, during years two and three of their programmes. Despite a heritage of working with under-represented groups, for some post-92 institutions this decision may have coincided with a change in aspirations, from being a

'recruiting' university to a 'selecting' one. Consolidating financial support to attract the very brightest students from under-represented backgrounds might enhance metrics such as average entry tariffs, which feed into sectoral league tables. The Institute for Fiscal Studies (IFS 2012) offers convincing evidence that during the operation of the NSP the number of financial awards diminished, suggesting a shift in focus from 'breadth' to 'depth'.

HEIs signed up to the NSP as part of their returns to OFFA, which provide reassurances about widening participation work (e.g. outreach activities, institutional bursaries, modified admissions criteria), in return for levying higher tuition fees. There is concern that OFFA might lack the 'teeth' to compel progress in this domain; a criticism resonant of that levelled at the South African system, which financially rewards HEIs admitting more disadvantaged students, but avoids sanctions for those that resist change (Belyakov *et al.* 2009). Indeed, the recent white paper lays out plans to subsume OFFA into a new 'Office for Students' (BIS 2016). Although more optimistic appraisals exist (Crawford 2012; Chowdry *et al.* 2013; Harrison 2011) suggests that against a backdrop of modest sectoral improvements in the proportion of students with low socio-economic status, their representation within Russell Group institutions has worsened since the 2004 Higher Education Act. Nonetheless, funding continues for hundreds of institutional bursary schemes, which serve to address OFFA expectations. These feature diverse eligibility criteria (Harrison 2011) and are not typically attended by firm evidence of impact (Harrison and Hatt 2011). Some schemes identify specific characteristics (e.g. ethnicity) within their eligibility criteria (e.g. UCL's Bartlett Masters scholarship and Liverpool John Moore's Antony Walker Bursary) – an interesting feature, given the requirements of the UK Equality Act 2010 to treat all ethnic groups consistently. In the US, forms of affirmative action that aimed to equalise historic disadvantages for certain groups have been successfully challenged in the courts as discriminatory. This includes 'race conscious' financial aid for HE students (Lark 2012). A ripple effect has seen retreat in the sector from such targeted support, as HE administrators become fearful of litigation. Commentators such as Harrison (2011) advocate a radical simplification of bursary funding to remove the 'gauntlet' of financial aid (Capt 2013), which can rob potential recipients of its benefits. Many US schemes take the form of 'last dollar' benefits, which top-up students' finances to a certain threshold, once federal aid and other support has been considered. Despite the logic of this approach, it is exceedingly complex for an individual student to navigate.

3.3.4 Financial literacy

Alongside financial support, several sources indicate that students and their families would appreciate financial training (Berumen *et al.* 2015; Gonzalez *et al.* 2013) around securing federal aid and managing personal finances. A survey of access support providers in Virginia found that 75% considered training in 'financial literacy' in their programmes (Alleman *et al.* 2009). Be it necessitated by the 'Byzantine' complexity of HE funding in the US (Johnston 2010) or an act of genuine forward

thinking, this form of support does not appear routinely in the UK. A model described by Kezar (2009) proposes 'Individual Development Accounts' (IDAs), which have been commonly applied in fields such as housing. Alongside financial education, families make regular savings, generously match-funded by the state, towards a pre-determined purchase (in this instance, college fees). Schemes may allow some flexibility as to how monies are spent (e.g. on tuition, books, or computers) and the option to transfer funds to another relative. As Burke (2013, p. 139) notes, 'the willingness to accept debt as an inevitable part of the pursuit of 'success' is tied to particular (white, middle class) values and dispositions.' The IDA model may provide an alternative for under-represented groups – such as Muslims or Latinos – who are historically reticent towards debt.

Some nations have enacted different forms of financial policy. In Brazil, there has been dramatic expansion in the private HE sector to accommodate increased demand without the need for public investment (de Araujo 2012). The 'Prouni' (University for All) policy promised federal tax breaks for private HEIs in return for admitting underprivileged students, but has not been without criticism. Much of the expansion in HE participation for underprivileged groups has come via enrolment in less prestigious two-year courses. With a fixation on access and less attention to subsequent retention and success, abandonment of HE is also common, often as a result of financial hardship (de Araujo 2012). Finally, standards within private institutions have been criticised in Brazil (de Araujo 2012), as well as in Ghana (Effah 2011) and Pakistan (Khan 2010). This literature is pertinent for the UK, where the recent white paper laid out plans for facilitating the creation of new private providers as a means of increasing competition (BIS 2016).

3.4 Programmes of support

A host of interventions combine different elements of non-financial support (e.g. Sondergeld *et al.* 2013). In a useful summary of schemes from the US, Harvill *et al.* (2012) define five common components: counselling; mentoring; parental involvement; social enrichment (e.g. group field visits); and academic enrichment (e.g. supplementary after school academic tuition). The authors' meta-analysis suggests promise, with study participants showing an average rate of college enrolment 12% higher than comparators. The authors acknowledge, however, significant variation among programmes in terms of components and target audience. Furthermore, several initiatives were short-term – taking the form of a summer school, for instance (e.g. Ghazzawi and Jagannathan 2011; Martin *et al.* 2011; Yelamarthi and Mawasha 2010) – whereas others spanned several school years (e.g. Bernhardt 2013; Dyce *et al.* 2013; Scott *et al.* 2015). Definitive evidence regarding the optimal length is not evident, but aside from piquing interest in HE, it is uncertain if very short engagements can develop certain aspects such as academic preparedness (Rodriguez and Wan 2010) or financial literacy. Further research around the duration of programmes appears warranted, given that it determines the cost of delivery.

Only one paper reported any form of analysis – Tierney and Garcia (2014) established a cost of around \$1,000 dollars per recipient for their mentoring programme in high poverty schools. Ninety per cent of individuals progressed to a four-year institution, compared with a typical post-secondary participation rate of only 30%, suggesting a better return on investment than direct financial aid. In this instance, funding was obtained from a range of national and local bodies, with co-ordination by a HEI. Funding instability was noted as a potential threat to expansion and sustainability of the scheme. Notably, a growing number of states are making completion of such support programmes compulsory before high school graduation or enrolment in post-secondary education (Rodriguez and Wan 2010).

An area where more research appears welcome concerns the 'intensity' with which participants engage with scheme opportunities, for example, how many sessions they attend. Sianjina and Phillips (2014) found that intensity of engagement in the GEAR UP programme predicted mock SAT performance and schemes might, therefore, encourage or even demand high levels of engagement.

3.4.1 Discipline-specific programmes

While most programmes target access to HE per se, some are discipline-specific. Mirroring patterns among progression-focused interventions, these tend to be in areas with labour shortages. For example, responding to a global dearth of Science, Technology, Engineering and Maths (STEM) graduates (Effah 2011) Yelamarthi and Mawasha (2010), Chang *et al.* (2016) and Wilson *et al.* (2012) describe initiatives promoting access. Participants in one initiative experienced academic classes and workshops highlighting potential careers, with around three quarters continuing to a STEM programme at the host university (Yelamarthi and Mawasha 2010). The initiative described by Chang *et al.* (2016) emphasised camaraderie to build motivation for HE. While their evaluation principally focused on retention and success, enrolment statistics suggested benefits for access, particularly among under-represented students; 65% of scheme participants were ethnic minorities, compared with a campus average of 35% in STEM subjects. In the UK, Hulme and de Wilde (2014) reported on strategic discussions within the sector that explored access to STEM in higher education.

Meanwhile, Pickel and Bragg (2015) describe efforts to increase access to Nursing. In an approach reminiscent of an 'equity scorecard', 'Pathways to Results' took a data-driven approach, pooling information on equality from across the US institution's services. The authors identified several threats to access, including poor communication of admissions requirements, but also identified value in outreach activities to make nursing programmes visible within the community. This is relevant to the UK where access initiatives may have veered away from outreach in favour of consolidated support for a smaller number of students (McCaig 2016). This intervention appeared successful, with the proportion of nursing students with

African-American heritage rising from 10% to 17%, matching the overarching college demographics.

Ghazzawi and Jagannathan (2011) describe an outreach programme focused on attracting first generation students to US Business programmes. The initiative, in which 11th graders attended a three-week summer school, appears to have been successful, with 95% of alumni progressing to college. Interestingly, however, the majority did not elect for Business-related majors. A legitimate question arises around the extent to which specific disciplinary routes should be promoted, given that correct choice of course is important for retention. Finally, Woods *et al.* (2016) describe efforts to encourage access to teacher training programmes in the US.

3.4.2 Programmes targeting specific population groups

Most support programmes have been keen to engage with students with low socio-economic status. As with finance-based initiatives, many targeted schools and communities that are categorised as being underprivileged (e.g. Amaro-Jimenez and Hungerford-Kresser 2013; Nunez 2009). In contrast, some have considered individual-level characteristics such as being the first generation in the family to attend university (see Doyle and Griffin 2012; Ghazzawi and Jagannathan 2011; Jerrim 2013). Such approaches can help to demonstrate positive effects in target groups, as opposed to generic impact on access. For example, among alumni from the Sutton Trust Summer Schools in the UK (Jerrim 2013), 76% progressed to a leading university compared with 55% among a comparison group with matching academic and social profiles.

In the US, Gonzalez (2013) and Amaro-Jimenez and Hungerford-Kresser (2013) describe interventions targeting Latino access. Interestingly, the latter paper drew on the voices of peer mentors, who were an instrumental component of the scheme and were organised by the collaborating HEI. This approach may represent the kind of “move beyond the generic campus visit to offer a planned programme of academic engagement developed in collaboration with schools”, as advocated by Whitty *et al.* (2015, p. 54). Mentors revealed that even where Latino high school students were interested and prepared regarding HE, culturally-specific issues could dampen enthusiasm (e.g. caring responsibilities for siblings). Indeed, US data for 2006 shows that 41.6% of Hispanic students were enrolled within 50 miles of the parental home, versus 34% of their White counterparts (Avery *et al.* 2014). This echoes barriers reported by Harrison (2011) and Harrison and Hatt (2011) in a UK context, whereby certain groups (e.g. Asians) are reluctant to venture to prestigious institutions should this involve leaving the home region.

In a US setting two studies considered access among rural communities (Giles 2012; King 2012), while Bejarano and Valverde (2012) and Nunez (2009) focused on offspring of itinerant workers. According to the latter, the ambitious summer programme run by the Migrant Student Leadership Institute sought to facilitate

participants on the path to college or community activism. Participants engaged in rigorous preparatory courses, including practice in the Scholastic Assessment Test (SAT). A college application rate of 53% was more than twice that of non-participants, with 87% of applicants who were accepted entering college. Furthermore, scheme participants were four times as likely to apply to highly selective University of California campuses (UCLA or UC Berkeley), suggesting a growth in confidence. The geographical mobility of this group may help limit the phenomena of 'under-application' seen in other groups (Avery *et al.* 2014). In the US this manifests as focusing application on two-year rather than four-year institutions.

In the UK, under-application may see bright students from under-represented groups eschew Russell Group institutions in favour of 'safety schools' that do not match their academic credentials (Whitty *et al.* 2015). Alongside powerful socio-cultural explanations (Amaro-Jimenez and Hungerford-Kresser 2013), individuals with low incomes may lack funds to visit prestigious institutions for open days, if they lie far from home. There is also likely to be an interaction between geographical factors and density of HEIs. For example, McCulloch (2014) found evidence in the UK of regional differences in aspiration between London and the regions, thus evidencing the need for further research.

In a novel study, Perez (2010) considers access for 'undocumented individuals' (e.g. youths under 24 years who were brought to the US often before schooling age). Notwithstanding the lack of a clear federal ruling, eighteen US states have passed legislation allowing these individuals access to HE (Anderson 2015). The author notes several points of good practice, such as signposting funding sources beyond federal aid (which they do not qualify for) and removing subtle obstacles from the application process (e.g. compulsory entry of a social security number). There are some parallels with the UK where asylum seekers who do not generally qualify for loans may be required to pay international fees.

In describing an initiative to attract disabled students into US STEM courses, Martin *et al.* (2011) noted the importance of attention to detail so as not to deter target groups. Inclusive practices include providing accessible information and application material in alternative formats, representing people with disabilities in materials beyond mere appearance in photographs, and ensuring senior university leaders publically articulate support for applicants with disabilities. A similar programme described by Izzo *et al.* (2011) involved setting up student learning communities (SLCs) made up of US high school students with disabilities who had an interest in pursuing STEM. Weekly sessions and/or a residential campus experience developed participants' self-determination and self-advocacy. This tallies with Shaw *et al.*'s (2009) observation that access programmes should focus on transferable skills as well as academic content. A benefit of SLCs is that they generate a social support network that individuals might continue to draw upon once they enter HE (Izzo *et al.* 2009). Furthermore, service as a mentor helped current undergraduates towards

career readiness, evidencing the sustainability of the scheme structure. Nonetheless, difficulties arose from the relatively low number of students with a disclosed disability, leading to challenges attaining critical mass – an issue that would be particularly acute in areas of low population density.

In a different context, Australia's Group of Eight (2009) identifies a further cohort that should be considered – indigenous communities. Similarly, Keene (2016) describes an intervention targeting Native American, Alaska Native, and Native Hawaiian students, who traditionally form under-represented groups. While the programme shows impressive effects (99% of participants enrol in college and 85% graduate within five years), the competitive application process, requiring a GPA above 3.0 means that the programme may attract strong students who are already on course for participation, re-igniting the debate about merit-based versus needs-based eligibility.

3.4.3 Family and social/cultural capital

Although Nunez and Oliva (2009) found evidence to be inconclusive over the best partnership structure for support programmes (e.g. school–HEI, school–state–HEI), many papers discuss the importance of engaging stakeholders. Coles (2012) provides a useful taxonomy of community-based organisations (CBOs) that can plug gaps in the provision of local schools/HEIs. With reference to “direct service organisations”, which provide college information and advice to students and their families, the author cites a 2009 report on 23 services, where increased enrolment rates were observed (Hooker and Brand 2009). In Australia, Scull and Cuthill (2010) provide a stakeholder analysis for those engaged in an access initiative, but overlook employers who are noted by other authors as helping to illuminate students regarding potential employment destinations (Bernhardt 2013; Ghazzawi and Jagannathan 2011; Gonzalez 2013).

Meanwhile, the role of family attracts further comment. Bernhardt (2013) and Gonzalez (2013) found family support integral in motivating students' HE applications. A survey of access programmes in Virginia found that 27% had parents as a major influence, and a further 53% listed them as a secondary influence (Alleman *et al.* 2009). As a symbol of their engagement, some programmes ask parents to sign a contract confirming their commitment to facilitating their child's aspiration for HE (e.g. Bernhardt 2013), albeit direct empirical support for this feature is unclear. In contrast, Giles' (2012) work in rural communities found evidence that family could hamper aspirations, with faculty members needing to redress these effects. Indeed, King (2012, p. 24) noted that, “perhaps mentors and other community members provided the information and encouragement that many rural students' parents were unable to provide.” Alongside family members, Carolan-Silva and Reyes (2013) note the potential role of peers, who have themselves navigated the process of HE application and admission.

Nonetheless, other authors counsel against making assumptions regarding the (low) levels of social and cultural capital in families of students in access programmes (Dyce *et al.* 2013). Firstly, on a purely technical basis, some easily operationalised measures of disadvantage can be crude (e.g. free school meals) and more sophisticated markers of cultural poverty need to be sought (Whitty *et al.* 2015). Secondly, although relatives may not have participated in HE, they may be highly invested in the idea as a means of familial and communal 'uplift' and may, therefore, help motivate HE participation (see Carolan-Silva and Reyes 2013). In the UK, Whitty *et al.* (2015) report that parental aspirations for children to attend HE appear to be high, irrespective of social class. Rather than leaving 'uninitiated' family members on the sidelines, their resources could be leveraged. For example, Bejarano and Valverde's (2012) study of US students from farmworker backgrounds indicates that notions of "familia" and "pedagogies of the home" were helpful in inspiring perseverance. Clearly, careful attention should be paid to the assorted actors surrounding individuals who have a prospective interest in HE. Where a programme engages multiple stakeholders, administrative support may be essential (Nunez and Oliva 2009).

While a minority of students may complete a foundation year, the UK system is characterised by a relatively sharp divide between secondary and tertiary education. Conversely, in the US, some individuals engage in an intervening phase. 'Post-secondary opportunity programmes' (POPS) are often hosted on university campuses and act as a precursor to formal HE programmes (Vaade 2010), helping to develop academic and practical skills (e.g. application etiquette). In some cases, successful completion is rewarded with a guaranteed place on a HE course. Notably, access initiatives in the US have also extended to fundamental redesign of the school curriculum and environment to create a 'college-going culture'. Myers *et al.* (2010), for example, describe how, alongside financial aid and a programme of support, the Washington State Achievers programme involved the creation of smaller high schools, more personalised learning environments, performance-based assessment and improved use of learning technology, among other elements. We are unaware of an integrated approach like this in the UK. Notwithstanding evidence in support of POPS programmes, some commentators suggest value in providing high school students with information even earlier on their level of preparedness for higher education, as occurs in the US and Netherlands. This can take the form of using testing to predict an avenue best suited to a student's current profile (e.g. HE, vocational training, and so forth), as well as providing subsequent support for students wishing to traverse categories. While such early tracking can be accused of encouraging self-fulfilling prophecies in terms of outcomes, proponents suggest it can be valuable in terms of aiding student's self-monitoring and motivation. Nonetheless, an evaluation of California's Early Assessment Programme found no evidence of impact on application or enrolment behaviours, raising questions as to whether students fully take heed of this type of information (Jackson 2015). Aside

from preparation towards formal academic tests (i.e. mock exams for GCSE, A-level) we are unaware of systematic testing and tracking of HE-readiness in UK contexts.

3.4.4 The UK's Aimhigher scheme

Aimhigher in the UK (2004-2011) brought together many access-focused programmes. Whereas NSP often involved sizeable financial support for a small number of recipients, Aimhigher was "characterised by a series of localised interventions aimed at potential first generation entrants to higher education" (Doyle and Griffin 2012, p. 76). The target age group (14-16 years) contrasts with some initiatives in the US that engage individuals much earlier (Alleman *et al.* 2009), including pre-school (Nunez and Olivia 2009). Typical Aimhigher activities included summer school experiences on university campuses, master classes, campus visits, guest lectures, and mentoring. Conjecture remains about the scheme's effects on HE enrolment. The 'localised complexity' of the initiatives makes the evaluation of impact on a national scale challenging (Ball 1993). The HEA curated a web archive of diverse initiatives within the Aimhigher structure (HEA 2016a). Moreover, the tracking of those who participated in activities was patchy relative to some US schemes, where the use of "student contracts" provides a clear paper trail for evaluation purposes (e.g. Bernhardt 2013). The recently developed HE Access Tracker (HEAT) is intended to record individuals' engagement with outreach activities and subsequent progression into HE (Whitty *et al.* 2015). This would mirror approaches used in several US states (Nunez and Oliva 2009). Doyle and Griffin (2012) also note concerns as to whether Aimhigher activities engaged certain target groups (e.g. Indian and Bangladeshi children), and how multiple Aimhigher activities delivered by local HE providers jostled with other initiatives focusing on schools to produce an "initiative overload". In reviewing interventions targeting HE access for ethnic minority students from disadvantaged backgrounds, See *et al.* (2012) located only 14 qualifying studies as many initiatives, especially from the UK, were not robustly evaluated. Nonetheless, in reflecting on the transition from Aimhigher to the NSP, Whitty *et al.* (2015) note the value of the former in strengthening communication between HEIs and local schools and colleges.

Aimhigher is not unique in having shown issues with evaluation; complexity of provision is inherent in many US initiatives (Capt 2013). In a qualitative paper, Rogers (2012) sought to unravel the relative impact of different programme elements (e.g. courses, tutoring, peer relationships) on the formation of social capital. We are unaware of similar efforts among quantitative studies to 'deconstruct' programmes. Reported effectiveness can indeed be highly dependent on methodology. For example, the meta-analysis by Harvill *et al.* (2012) found that enrolment rates were increased by only 4% in those studies measured by randomised controlled trial, versus 12% across all of the analysed studies. An interesting paper by Horng *et al.* (2013) provides a model for improving evaluation of access initiatives. The authors describe a relationship between a national access programme (the National College Advising Corps) and a research and evaluation

team at Stanford University. The paper provides ideas for best practice based around triangulating evidence from a number of channels such as student surveys, National Student Clearing House data, and site visits. Several other authors attest to the importance of taking a data-driven approach, where initiatives are not undertaken without forethought as to how positive effects will be measured and demonstrated (e.g. Coles 2011; Group of Eight 2009; Pickel and Brag 2015). Technology may also be assistive. The Chicago Public School's On-Track Indicator (Rodriguez and Wan 2011), for example, is a 'student analytics' tool, which allows academic progress and likely success in HE to be tracked at an individual level from the beginning of high school. Data can be used by students and parents for self-monitoring, as well as by teachers for shaping curricula and informing interventions (Johnston 2010).

In many support programmes, the mix of academic and transferable skills is developed via relatively conventional pedagogies. A handful of studies have, however, applied innovative approaches. For example, Scott *et al.* (2015) describe a US intervention where relevant academic skills (e.g. forming arguments and critical reading) and confidence were nurtured through a student-based action research project that focused on a community issue. Johnston (2010) stresses the value of research activity to HE students, highlighting its potential as an ideal medium through which to deliver preparatory training. Meanwhile, the US initiative described by Ghazzawi and Jagannathan (2011) featured experiential learning as participants compiled a business case. In instances where the discipline is aligned with a specific profession, such as Nursing, job shadowing might also be valuable (Healey 2013). With a limited number of such studies it may be inappropriate to compare their effects directly with more conventional interventions. Ulate (2011) describes benefits of 'dual enrolment', whereby students undertake HE courses for credit at the same time as completing high school. Perez (2010) singles this out as a helpful strategy for undocumented students trying to find a route into HE. Worthen and Patrick (2014) describe the 'Course Access' programme, to address the phenomenon of some US high schools not offering the full complement of classes required for HE access by using institutional collaborations. While this problem may not be directly relevant to the UK, one wonders if, in the era of the academy and increasing provider collaboration, more might be done to provide support for transition to HE.

3.5 Admissions/application process

3.5.1 Focus on student characteristics

Aspects of the admission process have been much researched. As noted earlier, in the US legal challenges have produced a retreat from overt affirmative action such as accepting lower entry grades for under-represented groups. This movement has proven unpopular with groups who might have benefitted (e.g. Asian Pacific Americans; Hartlep *et al.* 2013). Indeed, in the immediate aftermath of this policy change Andrews *et al.* (2010) describe a "precipitous drop in minority enrolment" (p.

104). In several territories, affirmative action is still legally permitted. The University of Brasilia, for example, initiated racial quotas in 2004, reserving 20% of admissions for students who self-identified as Black (Francis and Tannuri-Pianto 2012). Likewise, affirmative action policies are applied in Columbia (Uribe Correa 2012) and throughout Africa (e.g. Kenya, Onsongo 2009; Ghana, Effah 2011; Tanzania, Mwaipopo *et al.* 2011). The approach is not without controversy, however. As a Kenyan female noted:

It has put a majority of us women in a very bad spot. Once in a while a male student will tease you that you only joined the university courtesy of the ... decision to lower points for women (*Nungu 1994, p. 15*).

This is an interesting comment set against the UK context, where male under-performance is a key educational issue.

Furthermore, student characteristics can only be factored into admissions if they are disclosed. In discussing admissions for US students with disabilities, Shaw *et al.* (2009) suggested that individuals should be given the right not to disclose but should understand the consequences (e.g. potentially limiting access to support). According to Newman *et al.* (2010), only 44% of US college students with disabilities choose to reveal this information. Cegler (2012) discusses methods for promoting participation for lesbian, gay, bisexual, and transgender (LGBT) groups, who have been received less attention in HE diversity debates (e.g. advertising LGBT-friendly institutional services and policies; partnering prospective students with an LGBT peer). The author notes a moral responsibility for respecting confidentiality around individuals' sexuality while achieving progress at a macro level.

Other characteristics, such as socio-economic status, although not sharing the same legal status, can serve as proxies to achieve the broad goal of addressing inequality. Indeed, as part of returns to OFFA, several UK HEIs have pledged to accept slightly lower entry scores for individuals from underprivileged backgrounds. As Antonovics and Backes (2014, p. 306) note:

schools that are prohibited from using race as an explicit criterion in admissions will place less emphasis on traits that predict academic performance and more emphasis on traits that proxy for race. (*Antonovics and Backes 2014, p. 306*)

This could be dubbed a 'colour blind' approach that, nonetheless, ultimately benefits ethnic minority groups. Antonovic and Backes (2014) report data from the University of California where, following the state ban on affirmative action, admissions processes were modified to increase the weight given to high school GPA and family background (i.e. parental income and qualifications), at the expense of SAT. These tweaks partially offset the drop in minority admissions that had occurred, with a concomitant fall in admissions for students with high academic achievement and more affluent backgrounds. Academic quality across the entire cohort – as measured

by average first year GPA – remained stable following the change. The concept of a 'trade off' was replicated by Francis and Tannuri-Pianto (2012), who compared the prevailing affirmative action policy in Brazil (20% quota for Blacks) with two hypothetical scenarios; one where half of admissions were reserved for those from public schools, and another where 20% of admissions were ring-fenced for students below an income threshold. Both alternatives increased Black admissions but to a smaller extent than overt affirmative action. The authors note that the key to setting admissions criteria is to first identify the overarching demographic shift that is desired.

A criticism often levelled at differential admissions policies is that they might actually demotivate intended beneficiaries. Pastine and Pastine (2012) modelled two approaches focusing on students from deprived backgrounds. When an 'additive' formula was used (i.e. grades were compensated by a set amount), qualifying individuals appeared less incentivised to work harder, with those students with unadjusted scores prepared to increase their engagement to offset the 'handicap' and claim the opportunity to access HE. This evidence is significant given the problems with unpreparedness reported by many HE entrants (ACT 2009). Indeed, in its earliest days, the widening participation movement stands accused of being fixated on access with too little regard for attainment and retention once 'inside' the system (Harrison and Hatt 2011). Rightfully, perspectives have broadened with the emergence of a 'lifecycle' or 'pipeline' approach, which considers events after students' initial entry to HE. Pastine and Pastine (2012) provide evidence that the approach of multiplying target students' scores by a factor creates competition between them, incentivising them to work harder. Clearly, close attention to motivation is required wherever universities manipulate admissions criteria.

As well as systematically adjusting admissions criteria for individuals based on key characteristics, innovative mechanisms have been trialled. For example, Texas's 'Ten Per Cent' rule guarantees a college place for students finishing in the top decile for GPA in their high school; the intention being that this will neutralise structural disparities in achievement between schools in privileged versus underprivileged communities, allowing bright students to access opportunity irrespective of background (Andrews *et al.* 2010). Such approaches reflect evidence that access to tertiary education, especially prestigious institutions, is highly affected by secondary school experiences (Belyakov *et al.* 2009; Whitty *et al.* 2015). In tandem with the 10% rule, the University of Texas at Austin ran a support programme for 70 schools identified as having poor historic HE engagement (Andrews *et al.* 2010), with generally positive outcomes. The findings provide support for the benefit of multi-faceted interventions, whereby those students who do not qualify for financial aid or a guaranteed place in HE may still benefit from the auxiliary support provided. Treviño *et al.* (2014) describe a Chilean intervention modelled on the 10% rule. This was, in part, a response to the use of a standardised national test to manage HE admissions, which evidence suggests might compromise underprivileged students.

Indeed, modelling by Santelices and Wilson (2015) suggested a potential 10% increase in minority admissions by using a revised Scholastic Assessment Test (R-SAT), which focused on 'hard' questions to address differential success in guessing answers to 'easy' questions between minority and non-minority students. While the Chilean 10% policy appeared to increase admissions from under-represented groups, with beneficiaries performing above required university thresholds, over the course of studies an achievement gap was established and widened, favouring students admitted through regular processes (Treviño *et al.* 2014). Nahai (2013) describes a similar 'contextualised' admissions practice operated by the University of California at Berkeley, where applicants' ranking in their immediate school cohort is considered, and ponders if it could be helpful in addressing disparate admission patterns to Oxbridge.

In contexts where socio-economic disparities between different communities are stark and entrenched, it could be argued that initiatives such as the 10% rule are insufficient and that removing completely standardised test results from admissions processes might be justified (see Koljatic and Silva 2013). Instead, students might be offered a place if they can successfully pass a form of 'jump start' programme focused on core skills. Typical of many such initiatives, the scheme described by Koljatic and Silva (2013) demanded student engagement (measured by percentage attendance). This kind of 'contingent' opportunity does not appear common in UK contexts. A recent survey of US HEIs found that around half operate some form of 'provisional admission', whereby completion of a pre-entry programme (e.g. a summer bridge programme) was rewarded with a guaranteed place (Nichols and Clinedinst 2013). It should be noted that, in some cases, additional requirements (e.g. around GPA) were applied. The authors provide compelling evidence that these approaches are associated with enhanced retention in HE. The motivational effects of encouraging initial access are, however, less clear and warrant further examination.

Gabbard and Mupinga (2013) provide potentially important evidence that movement towards more of an 'open door' policy for HE admissions does not necessarily erode academic standards. Nonetheless, this is likely to remain an area of intense focus, especially in systems like the UK's, where there is no national benchmarking of institutional standards. In ensuring that students admitted through non-traditional channels keep pace with their peers, Gabbard and Mupinga (2013) point to the value of attending parallel remediation classes. There would appear to be little literature on the structured and systematic roll-out of such classes within UK settings.

3.5.2 Focus on student behaviours

Other research has focused on student behaviour during the application processes. Discussing online information gathering, Brown *et al.* (2016) considered this a potentially lengthy operation that would be fragmented for students with no

personal internet access, such that they must rely on institutional facilities. Results indicated that students were capable of accessing lots of information but experienced challenges in making sense of it, especially first generation applicants, so echoing findings from Carolan-Silva and Reyes (2013) among prospective Latino students. Indeed, Dias *et al.* (2011) follow a Bordieuan line of thinking, discussing the predictive impact of parental post-secondary education on entry to HE. Brown *et al.* (2016) highlight the potential benefits of social media in facilitating prospective students to communicate, share experiences, and resolve queries. These 'genuine' exchanges may also allow students to go beyond the curated and manicured portrayals of university that in a heavily marketised HE sector have become ubiquitous in official materials. Frølich and Stensaker (2010) discuss the modern pursuit of 'excellence' by Norwegian HEIs, which appears relevant to the UK. The authors found that the HEIs under scrutiny infrequently considered the relationship between excellence and recruitment diversity. This linkage may become more evident in the UK, as a stated aim of the newly instituted Office for Students is to, "make sure that a high quality higher education experience is available for students from all backgrounds" (BIS 2016).

HE providers should be mindful that the fine detail of admissions processes do not unwittingly impede certain groups. For example, standardised pro formas, where not made available in alternative format, can be challenging for blind students (Mwaipopo *et al.* 2011) and formatting which exclusively accommodates domestic telephone numbers or Roman characters can create problems for international students (Redding 2013). A generic application form used by 400 HEIs in the US features a binary field for gender and instructions to enter the gender on the individual's birth certificate, with disproportionate implications for transgender applicants (Cegler 2012). Furthermore, the requirement to enter a social security number might be problematic for homeless students who also have difficulty in providing information about parental income and assets when pursuing federal aid (Dukes 2013). Healey (2013) posits that materials might be provided in an alternative language to English.

There is also a growing trend for individuals to seek third party help with applications. As far back as 1993, nearly half of the international students in Western Australia had used an 'educational agent' to assist the process (Mazzarol and Hosie 1996). A significant number of domestic students are also accessing this kind of help, which represents a kind of fast track route to cultural capital. There are concerns around this often-invisible practice. First, there is the possibility of mistreatment of 'customers' (e.g. absconding with money or simply giving poor advice), and secondly, the possibility of improper practice (there have been some reports of agents directly writing applicants' personal statements). This is serious and may mean that a deserving applicant misses out on a place in HE. There is also the fundamental issue that while these services may facilitate entry to HE, once support disappears individuals are at risk of dropping out (Hagedorn and Zhang 2011).

A paper by Woods-Giscombe (2015) describing recruitment of under-represented groups to nursing compiles several forms of good practice, such as staffing university facilities with physical navigators to help guide interested parties; providing timely feedback on admissions decisions; and establishing a clear and navigable website. They also suggest that staff with frontline admissions responsibilities – including many academics – receive training to be aware of the perspectives of under-represented groups, thus helping to prevent any unconscious bias in their dealings with prospective students. There might also be value in using role models within the admissions process. Scull and Cuthill (2010) lament the lack of teachers with Pacific Island backgrounds to nurture interest in HE among similar students. In relation to the role of staff in admissions, an innovative study by Giddens (2010) tasked students on a US graduate nursing programme to devise and critique different admissions models. The rationale was that as potential medical educators in training, it would be beneficial to inculcate them to the challenges of student recruitment.

The phenomenon of under-application, discussed earlier, has led some to question the very policy of widening participation, if there is a risk that under-represented groups are enticed to institutions and courses that do not add adequate value to their career and earnings prospects (McCartney 2006; Lea 2008). The unprecedented levels of debt that many students in UK HE must take on should indeed be considered. While policy initiatives such as the NSP have been criticised for failing to address the issue of disparate aspirations among groups, few firm solutions have been proffered. Belyakov *et al.* (2009) mention the possibility of establishing departments and classes in places where under-represented students live. In the UK, the Truro Knowledge Spa in Cornwall (an area of high deprivation) provides access to HE courses with the universities of both Plymouth and Exeter. Such models may be difficult for HEIs with fixed geographical roots, though blended learning (Jones and Lau 2010) and distance learning (Letseka and Pitsoe 2014; Moloney and Oakley 2010) may have a role in widening participation. Cooper (2010) shows that the Open University in the UK is successful in engaging ethnic minorities; 33% of its Psychology students meet this description versus 20% of Psychology students across the sector. The Open University of Nigeria enables students to complete an access programme before progressing to a full honours programme, which represents a potentially useful transition mechanism (Nnaka 2014). Online learning is also central in providing courses required for HE entry in the US (Johnston 2010; Worthen and Patrick 2014). In terms of pedagogy, some authors have, however, noted challenges in effective distance/blended learning where there is reluctance to depart from traditional learning and assessment methods such as unseen examinations (Jones and Lau 2010).

3.6 Limitations and gaps in the literature

In a UK context, there is only limited research around the impact of finance-focused interventions, especially given the unprecedented fee climate (£9k per annum). Future research should seek to document these effects clearly for different population groups, so as to ascertain the efficacy of interventions on under-represented cohorts.

With regard to support, more systematic evidence would be welcome as to the programme characteristics that are most likely to produce optimal effects. This includes the point at which stakeholders first engage with prospective students; the duration of student engagement that is required; the role of additional stakeholders (e.g. parents, educational agents); and the respective impact of different support components. Finally, evidence would suggest that it is important to consider the interaction between interventions and other factors, which might determine their ultimate success. In the UK, this would appear to include geographical context (i.e. proximity of prospective students to a range of different HEI options).

A general point might be made about the importance of accurate evaluation and compelling data-driven approaches. 'Big data' and 'learning analytics' are likely to play vital roles in recognising inequities in access and in presenting targeted solutions and it might be necessary to seek expert guidance around effective evaluation from, for example, institutional units with training in research methods.

4. Retention

4.1 Overview

Widening access to higher education (HE) for under-represented groups has been the chief focus of governmental and institutional policy and intervention until recently, when concern has spread to the persistence of those students – their *retention* within the institution – and the likelihood of success in degree completion and securing employment. In the following section of this review, the terms 'persistence' and 'retention' are used interchangeably; the former being more familiar in literature from the US.

Why is the raising of student retention rates important enough to warrant the attention of HEIs? Three broad rationales for intervention can be identified. Firstly, much of the literature mentions the importance of national competitiveness in a global economy that demands well-educated graduates. A second rationale draws on individualistic and liberal discourse around personal achievement, social mobility, and betterment of economic prospects for students and their families. Failure to complete a degree is costly (both financially and emotionally) for all concerned: the individual student, their families, the institution, and national departments, and an individual's longer-term prospects remain limited after withdrawal. From a third,

critical social theory perspective, underlying much of the literature emerging from the US is the elusive but enduring drive for social justice and equity between disadvantaged groups and the predominantly white population. The choice of intervention is often incumbent on institutional type, community context, and strategic mission.

The likelihood of a student remaining in university can be attributed to a number of factors beyond their academic ability when they enter their first year. In the UK, McCluckie (2014) describes how Tinto (1975, 1993), one of the recurring names in retention theory and literature, identified two key factors affecting retention – namely *academic* and *social* integration. Broadly speaking, the limited literature from the UK adopts a more psychological model of retention, compared to the more structural and critical analysis in the US.

There has been an increase in the quantity of research on student retention, particularly in the US from where the majority of the sources used in this section of the literature review originate. In this context, changing populations and immigration, astonishingly low graduation rates among specific demographic groups, changes to education funding, and the introduction of a complex raft of student loans, fees, and financial programmes all contribute towards making retention a pressing topic.

Although the racial gap in enrolment in US community colleges and universities has almost closed, student retention and graduation rates are far lower for those from minority groups. During his first term in office, Obama introduced the American Graduation Initiative to focus on the *completion* of degrees rather than widening access. The aim is for retention rates for specific disadvantaged groups to be drastically improved over the coming decade (Bragg *and* Durham 2012; Jenkins *and* Columbia University 2011; Bradley *et al.* 2010). The 'Ensuring America's Future by Increasing Latino College Completion' initiative offers a clear 'roadmap' towards Latino degree completion by 2020 (Santiago 2011). Retention rates are considered the new measure of success in the US HE sector, and Hillman *et al.* (2014) highlight the role of performance-based funding where state funds are allocated according to educational metrics, including retention and degree completion. Similarly, retention metrics are to be included in the forthcoming UK TEF (BIS 2016). Indeed, the retention of students in HE is a concern worldwide as higher proportions of the population gains access to degree programmes (Horn *et al.* 2014; Rajesh 2011).

There are various methods for measuring retention: the number of students making a successful transition between first and second semester; the number enrolling in the second year; and the number who persist through to graduation. Intervention programmes occur at different points during this period, depending on where concerns are highlighted. This section of the review focuses on reducing

withdrawals, while being mindful of the complex interplay between access, retention, attainment, and likelihood of graduation.

This chapter builds on Jones' (2008) review for the HEA of the literature on student retention and success, which identified four areas of research: establishing rates of withdrawal; identifying causal or contributory factors; exploring interventions or approaches that address withdrawal; and investigating the experience of those affected by withdrawal on an institutional and individual level. This chapter focuses solely on those interventions or approaches that have addressed withdrawal and that have had demonstrable impact on improving retention figures.

4.2 Assessment of evidence

4.3 Finance

Following the Dearing Report (1997), tuition fees for degree programmes were introduced to the UK. Since then, fee levels have increased and concerns have risen that financial pressures on students will reduce enrolment and increase the likelihood of early withdrawals, with students from the lowest-income families being hit hardest. Following a peak in enrolment in the 2010-11 academic year, numbers have fallen steadily (particularly among part-time and mature students) and critics attribute this in part to tuition fees (HESA 2014-15). The financial landscape of the US, like the UK, has changed considerably over the past 20 years. The access, retention, and attainment gap between low-income and wealthier students has been long-standing, with students from ethnic minority groups, lower socio-economic class, and first-generation students being at most disadvantage. The impact of financial changes on student experience at university can be gleaned from Brooks's (2012) synthesis of research findings from the HEA's 'Widening access, student retention and success' (WASRS) national programme archive but as she notes, relatively little literature exists relating to the financial impact on retention.

However, certain universities have introduced financial aid packages for low-income students, rather than student loans, in an attempt to bridge the perceived attainment and retention gap. The literature included here comprises a range of studies that explore interventions at both national and institutional levels; those studies that show demonstrable impact on retention mostly come from the US.

Student finance in the US incorporates an intricate suite of financial policies, aid packages and student loans at federal, state, and institutional level. Chen and St. John (2011) present a comprehensive national evaluation of the impact of state financial policies (merit-based or needs-based) on student persistence and completion of degrees within a six-year period in their first-destination institution. They find the effect of state-based aid on persistence is only marginally positive, concluding that stark inequity continues with students of higher socio-economic status 57% more likely to persist with their degrees than those requiring state

financial aid. In a longitudinal study of an elite university in Chile, Horn *et al.* (2014) studied the contribution of both national financial support and institutional level grants/loans at a single institution, which showed that their availability resulted in a modest increase in the likelihood of students persisting from one semester to the next in their first year.

The importance of *timely* financial interventions in the student life-cycle has been under-explored according to DesJardins and McCall (2010), who take a temporal approach to the analysis of aid packages and their effects on college student 'stop-outs', re-enrolment spells, and graduation chances. Using data from 12,648 students, they conclude that targeted and timely aid packages to prevent stop-out can indirectly impact on graduation rates. A number of other studies contribute to a consensus that financial aid packages are associated with persistence among the student population, albeit by small margins and for certain types of students (Bettinger 2015; Davidson 2015; Mendoza and Mendez 2013; Castleman *et al.* 2013; Goldrick-Rab *et al.* 2011). However, the cost-effectiveness or value-for-money of such interventions has been questioned (Bettinger 2015). As highlighted in the previous chapter, the issue of who is eligible for financial aid is complex and often impenetrable to students and their families (Davidson 2015).

Further studies present evidence that financial interventions make an impact on specific targeted groups. For example, first-generation students are most likely to withdraw, and women make up 75% of those first-generation withdrawals (Johnson 1997). Johnson, Eitel and Martin (2009) conducted a qualitative study with first-generation female college students exploring their financial 'literacy' and were able to clarify the complex reasons behind women's high withdrawal rate. The authors also found a clear gap between the financial literacy of white students and those of colour, suggesting that financial education programmes could help. Another study showed how using 'nudges' in the form of timely text messages for first-year students in receipt of aid packages, can assist students with financial management (What Works 2014). The importance of faculty and administrative staff interactions is highlighted in a qualitative study that reviews the impact of aid programmes on students' likelihood of persisting (Coleman 2010). All of administrators interviewed believed aid packages make an impact on retention; a finding that the author concludes "cannot be ignored" (p. 4).

The rising costs of pursuing a degree have other consequences for students: around 80% of undergraduates in the US work while studying for their degree. Research evaluating the impact of 'work-study' (Blandizzi 2013) on the retention of a single cohort of students in the University of California found that those students *not* working were more academically engaged and 5% more likely to graduate than those in paid work. In contrast, Carter (2012) discovered that involvement in a 'Federal Work-Study' programme, which funds students in employment on campus in paid and voluntary activities, had a significant positive impact on student retention

rates and amount of loan debt accrued. These studies demonstrate that the location and duration of a student's employment are important factors in the student's academic achievement and likelihood of persistence.

The majority of the studies included in this section conclude that the causes of student withdrawal are complex, ambiguous, and contingent on multiple social, economic and cultural factors. Recognising this complexity, Mayer *et al.* (2015b) call for innovation in financial aid packages, perhaps through varying the manner in which grants and loans are disbursed to students, and evaluation research of such innovations based on randomised control trials. Researchers often conclude that institutions should offer a comprehensive suite of interventions (Menifield 2012).

4.4 Targeted and timely interventions

As the literature from the previous section indicates, the reasons for student retention are complex and contingent on numerous factors. Barnett suggests that one of the 15 "conditions of flexibility" for higher education is for programme delivery to "have sufficient structure so as to enable student completion to be a likely outcome" (2014, p. 10). Recommendations in the studies below include holistic, structured programmes of support that proffer a range of interventions. This section of the review considers the evidence that targeted and timely programmes make a significant contribution towards raising retention rates.

4.4.1 Entire programmes

Targeted holistic programmes within HEIs are needed to address attrition concerns for certain demographic groups. Part-time students have been in decline in the UK since 2010 (Butcher 2015), but in the US around 40% of students attend college or university part-time, often juggling work and domestic demands. The high rate of withdrawal and failure of these students is of particular concern. In a compelling testimony to the US House of Representatives Subcommittee on Higher Education and Workforce Training, Jones (2012) says:

To make matters worse, a closer look on graduation day reveals that those eventually receiving degrees look very different than the student body on the first day of class: the hopes raised by nearly equitable enrollments are crushed by long persistent gaps in achievement and completion. (*Jones 2012, p. 3*)

He charts a 'new reality' of US HE – one in which only 25% of the student population is residential and where degree programmes remain dated and best suited to this rapidly diminishing full-time, campus-based student. He claims:

Today's students need less time on campus, fewer confusing choices and more structured schedules. Time, choice and structure are the key issues to address the needs of today's students and the optics through which efforts to boost completion must be viewed. (Jones 2012, p. 5)

He cites the compelling example of City University of New York's (CUNY) accelerated degree programme that introduced block scheduling to allow students to be registered full-time but only required to attend between 8:00am and 1:00pm, five days a week, thus allowing time to work.

Unless otherwise stated, the examples below all emanate from the US. An example of a targeted programme in a large US urban community college towards students in low-income groups offers longitudinal support throughout the student life-cycle (Saltiel 2011). Targeted interventions included the use of learning communities, support and orientation for new students, additional academic mentoring, advice, and support, career placements and guidance, and financial aid. Saltiel reported a significant positive impact of the intervention programme on student outcomes, including semester-to-semester retention rates and graduation status.

Another US example of a targeted intervention, the Idaho Successful Transitions and Retention Track (START) programme, aims "to provide social and academic support" as students "manage barriers while they pursue sustainable career and life goals" (Vincent and Michalak 2012, p. 65). The focus is on pedagogical classroom instruction, English and Mathematics support, and personal and careers counselling. Early results are encouraging, with 70% retention rates.

A further group attracting targeted attention in the literature is Science, Technology, Engineering, and Mathematics (STEM) undergraduates. A 'talent expansion' programme aimed at increasing retention and graduation of STEM majors in Tennessee included a Summer Mathematics Bridge Bootcamp, a networking programme, Research Award programme, Travel Award programme, and the creation of STEM learning communities. Evaluation was positive (Windsor *et al.* 2015), revealing that STEM students participating in MemphiSTEP activities were retained at higher rates and performed better than similar students who had not participated. Wilson *et al.* (2012) present an innovative model of mentoring and academic interventions that successfully address academic underperformance in STEM subjects and increase retention among this demographic. Yelamarthi and Mawasha (2010) analyse another comprehensive targeted programme to increase recruitment and retention of under-represented groups in engineering, this time of women and black and minority groups. The programme, which employed four core principles of career guidance, academic and social support, STEM principles, and self-efficacy including peer support, achieved 75% graduation rate compared with 45% in the university as a whole.

Two small-scale qualitative studies explore African-American students' experiences of targeted retention programmes (Johnson 2013; St. Leger 2012). In Johnson's study, high attrition rates were targeted through a multiple element programme that focused on academic, social, and professional aspects of life in a predominantly white university. This included a first-year orientation programme, mentoring, parental involvement, cultural services, and an institution-wide strategic commitment to retention. Although limited in sample size (six students and four staff) and length of study (two semesters), the author found the programme to be "an effective conduit for sustaining, supporting, and cultivating African American student success" and presented a comprehensive retention model for replication elsewhere (Johnson 2013, p. 45).

Boldly titled 'Doubling Graduation Rates', the 155-page report on the effectiveness of CUNY's Accelerated Study in Associate Programs (ASAP) provides further evidence that the provision of a suite of well-delivered and cost-effective services has a powerful impact on retention rates (Scrivener *et al.* 2015). ASAP comprised four components: the obligation on students to enrol full-time, a dedicated adviser, specific support courses, and tuition fee waiver where students experience a financial shortfall. The report reveals that 40% of the target group achieved a degree compared to 22% of the control group, and provides a detailed overview of the programme for other institutions wishing to replicate it.

4.4.2 First-year programmes

It is well documented that students find university very different to being at school. They are often unprepared for the level of study, independent learning, and lack of contact time. Hence, the first year can often present a 'crunch point' for student dropout. Withdrawal is costly for all concerned and should be prevented, unless it really is best for the student concerned (McCluckie 2014). In both the UK and the US, there has been a recent drive among universities to re-envisage first-year programmes and re-design the learning environment and culture to increase active learning, promote inclusive assessment regimes and increased contact time, develop graduate attributes, and nurture a sense of belonging among students.⁵ This section brings together studies that offer timely and effective interventions or programmes *before, during, and immediately after* the first year.

Students moving between school and university or college can find the transition very challenging. Gazeley and Aynsley (2012) provide a summary of the contribution that pre-entry interventions have made to students' retention and later achievement

⁵ See Bovill *et al.* (2008) for Scottish university examples; Plymouth University Curriculum Enrichment Project <https://www.plymouth.ac.uk/your-university/teaching-and-learning/curriculum-enrichment-project>; American Association of State Colleges and Universities, 2016 <http://www.aascu.org/newsreleases/RFY/>

in a number of UK universities. Three further studies were found within this review's specified timeframe that evaluated successful interventions *before* first year enrolment, designed to ease students' transition into HE. Murphy *et al.* (2010) examined a summer bridge programme introduced to address low retention rates for under-represented minorities (URM) - African-Americans, Latinos, and Native Americans. In a sample of 2,200 URM students, participation in the bridge programme was associated with higher likelihood of graduation. McEvoy (2012) also found that a summer bridge programme could improve retention rates among all students but proved most effective for under-represented groups. Thirdly, Herron (2012) examines the 'Act Six Leadership and Scholarship' programme that targets retention of under-represented urban students in private US universities. Based on critical theory, the aim is for students to go back to their communities to aid their transformation. They undergo a *pre-college* training programme based on vision, leadership, service, diversity, community, preparation, and transformation. The programme has impressive results: Act Six participants are 60% more likely to stay at college and six times more likely to graduate than Washington State Achievers (a comparative but less intensive programme).

Studies that focus on the experience of students *during* their first year are more plentiful. In his doctoral thesis, Malik (2011, p. 4) demonstrates that a first year seminar (FYS) series – “a non-credit, voluntary eight-week course taken by first years to help transition high school students to college” – helps promote social interaction and integration, and development of academic skills in a southern US institution. Smith (2010) demonstrates the positive influence that a short but intensive student orientation programme in a rural US community college had on first-year retention rates, based on two years' data preceding the intervention. Two six-hour sessions were designed:

to help first-year college students understand their responsibilities, facilitate their academic and social integration into college culture, identify barriers that may exist during their educational journey and devise strategies to overcome those hurdles, and introduce academic planning.
(Smith 2010, p. 4)

The orientation programme had a significant impact on raising retention rates and, in a survey, 87% students agreed or strongly agreed that they felt more comfortable heading into academic study. Smith concluded that first-year programmes should be bespoke to the institution and its particular needs.

Many universities offer first-year courses that allow students to adjust to the expectations of the institution and to learn academic skills (how to reference, use the library, etc.). A quantitative study of a targeted programme to enhance Latino students' goal completion, which includes a portfolio of support, meetings with an academic counsellor, progress reports, educational plans, financial aid, and book

vouchers, indicated that meetings with the counsellor showed the strongest association with improved retention (Barraza 2012).

The value of running a mandatory 'success course' early in the first-year for students placed on academic 'probation' is assessed by McGrath and Burd (2012, p. 46) in a large US public university. They addressed key elements of student development including academic skills (such as note-taking), exploration of different subject possibilities, and engagement with teaching staff, advisors, and student services. Control group data was gathered from two previous cohorts who had gone through the university before the success course was established. Results were extremely positive, showing 40% of students who had attended the course continued through to the fourth year compared with just 6% of students from previous years. Rather than a targeted programme, this study found that a well-delivered course is of value to *all* students.

In an Australian case study, Huntly and Donovan (2009) develop the notion of academic persistence (after Costa 1991) and time spent on task as a precursor to retention. They present a useful evaluation of two tutors' redesign of their first-year programme, which was founded on the seven principles of good practice in undergraduate education (Chickering and Gamson 1987).⁶ Students in both tutor groups showed increased academic persistence. While the study does not link this 'habit' to persistence through the degree programme, it suggests that it is an important skill for first-years to learn. Finally, Alexander and Gardner (2009) encourage colleges and universities to conduct a self-study of their first-year provision, using their framework with nine 'Foundational Dimensions®' to assess enhancements which increase student retention.

If students complete their first year, the long summer break can present another trigger point for withdrawal. In addition, students who acquire what Adelman (2004) termed 'academic momentum' have been shown to be more likely to attain a degree. Accredited summer schools can offer a 'boost' to the momentum of students at risk of withdrawal. The length of time taken to complete a degree programme is also a key factor as Jones, founder of the Complete College America programme argues that, "the longer it takes, the more life gets in the way and the less likely students are to graduate" (2015, p. 26). The report, "Time is the Enemy" (Complete College America 2011) argues that certain students' progress must be speeded up in the early years and shows that those who attended summer school at the end of their first year had between 7% and 11% point advantage upon graduation. In their

⁶ The principles of good practice are: Encourage contact between students and faculty; Develop reciprocity and co-operation among students; Use active learning techniques; Give prompt feedback; Emphasise time on task; Communicate high expectations; and respect diverse talents and ways of learning (in Huntly and Donovan 2009, p. 1)

extensive analysis of national data, Attewell and Jang (2013) note that although the summer schools have not historically been associated with attempts to increase retention and completion rates, students who attend summer schools at the end of their first year are 11% more likely to continue their studies through to graduation. Summer school attendance is on the rise in the US, and has a clear impact on students' progress, with students attending community colleges showing the largest gain.

4.5 Curriculum and pedagogy

Alongside the institutional interventions outlined in the two sections above, there is a sizeable evidence base that shows that the daily work of the university – teaching and learning – can make its own contribution to student retention. Implicit in many of the metrics used across the globe to measure the success of a HEI is the premise that the *quality* of teaching and learning has a bearing on continuation, persistence, or retention rates. The UK government is likely to differentiate between universities' 'teaching excellence' by use of retention metrics, as well as student satisfaction scores and employment figures (BIS 2016). Disappointingly, what is missing from the TEF at the time of writing is any indicator to measure improvements to teaching quality using innovative pedagogies, curriculum reform, technology enhanced learning, personal tutoring, or even teaching qualifications.

In his 2008 review of the literature for the HEA, Jones highlighted Yorke and Longden's (2008) three approaches to addressing retention: an institutional commitment to student learning and engagement; the proactive management of student transitions, and the redesign of the curriculum. This section explores some of the innovative practice taking place around the world that has been shown to bring about, in some cases, considerable increase in retention rates of students, particularly in the first year. In this context, *student engagement* in the teaching and learning process becomes paramount.

4.5.1 Curriculum reform

In their excellent paper incorporating UK, Malaysian, and Australian perspectives, Crosling *et al.* (2009) consider teaching and learning reform within a quality assurance and enhancement context. They highlight the methodological difficulties of linking teaching reform to statistical improvement in student metrics, presenting a detailed overview of a holistic approach to addressing retention through student engagement in a "student-responsive curriculum development" (p. 11). They call for the creation of a stimulating and supportive learning environment, which pays attention to building an 'authentic curriculum' that is relevant to students' needs, as well as including induction and orientation programmes, active learning, study skills, formative assessment, teacher-student relationships, and greater understanding of student diversity. Further research could include investigation of the impact of such reforms.

Implementing curriculum reforms can be testing on an institutional level, but in his doctoral thesis Jenkins (2012) analyses the introduction of a statewide curriculum across all campuses of a US university. His results show that some retention scores improved while others remained unchanged. There was significant negative faculty response to the imposition of the curriculum, hinting at the significant challenges of institutional-scale reforms that have not been developed from the 'ground-up'.

One of the identified obstacles to retention and completion is the length of time it takes students to progress through the system by gaining credits towards their degree. One method of speeding up this process is to take into account students' prior learning from a range of sources (military training, previous college courses, self-study, work experience, etc.). Three studies looked specifically at the impact of accrediting prior learning (called prior learning assessment or PLA)⁷ on student retention and completion rates. While showing a positive relationship between gaining military or previous institutional credits and time to degree completion, Chappell's (2012) study of 660 students in a technical and community college revealed an ambiguous picture of the relationship between application of credits and academic achievement. In contrast, Hayward (2012) found significant difference in graduation rates between PLA and non-PLA students, and according to PLA method. In a third study that targeted students in the black and Hispanic communities, results found that, "awarding college credit for significant life learning could be an effective way to accelerate degree completion, while lowering the cost, for underserved student populations" (Klein-Collins, 2011, p. 1). Earning PLA credits enables students to complete degree in fewer months and at less personal cost and has been shown to be a motivational factor in completion.

Another aspect of curriculum reform is the provision of flexible learning opportunities. Blended learning (combining face-to-face and online learning) is claimed to promote greater interaction and student engagement for a diverse range of students, which in turn can help raise retention and completion rates (Lee 2012). Amaral and Shank (2010) evaluated a blended learning module for an introductory chemistry course that intended to increase student engagement, interaction and time on task. The course team used a:

⁷ This is called 'accreditation of prior learning' (APL) in the UK.

systematic approach to instructional development ... that included learner and course goals/objectives analysis, design and development of learning activities, formative/summative student assessment, and qualitative and quantitative student course performance and satisfaction evaluation.
(Amaral and Shank 2010, n.p.)

Teaching used the flipped classroom model with use in-class of a student response system ('clickers'), and development of 'blended learning class guides'. The re-design had a striking impact on GPA and retention rates, doubling pass rates. There were initial student complaints about lack of 'teaching', but the authors claimed the culture shifted quickly.

Curricular interventions can of course take place at the departmental, subject, or programme level, often as result of faculty recognising patterns in their own student metrics and behaviours. An interesting study conducted by Brooman and Darwent (2012) in a law programme explored the impact of giving first-year law students self-awareness literature to read and reflect on. The analysis showed students found the literature useful to reflect on their own experiences, pick up new ways of managing stress, gain personal insights, and identify avenues for positive action.

In an analysis of retention programmes directed towards female engineering students, Franchetti (2012) reported increases in the retention of female students from 52% to 73% over the five year intervention period. The programme included a mentoring programme which pairs female first-years with senior students; encouraging membership of the local chapter of the Society of Women Engineers; the proactive hiring of female faculty and staff; integrated and co-operative learning programmes, and the introduction of a first-year design course. Again, it was the blend of approaches that was successful.

Few studies were found into the impact of participating in co-curricular or extra-curricular activities on retention rates, with the exception of Lockeman and Pelco (2013) who, in a rigorous, longitudinal study, examined the relationship between service-learning and degree completion. Despite having similar pre-college characteristics, the service-learning group showed demonstrable increase in retention and degree completion compared to the control group. Surprisingly, very little literature was found on the subject of assessment with the exception of Wang and Pilarzyk (2009), whose paper addresses the notion of "student swirl" of assessment deadlines in the first year and its impact on retention of suspended students. This is clearly an area to which research effort might be directed in future.

A final note should be given to the role of teachers' communication behaviours in students' decision to persist with a programme. In a psychological study of 570 undergraduates across three institutions in a southern US state, Wheelless *et al.* (2011) found the classroom behaviours that constructed a notion of teachers'

'credibility' (including non-verbal immediacy, perceived homophily (perception of similarity between individuals), and enthusiasm) accounted for 43% of students' decisions to persist with a programme. Interestingly, the positive effect was perceived across ethnic groups.

4.5.2 Technology/online interventions

Online programmes, distance learning programmes, and massive online open courses (MOOCs) have a distinct set of issues regarding student retention; the literature points towards technology as both an enhancement and a challenge for student retention. DeLotell *et al.* (2010) present a comprehensive overview of the provision of online learning and argue that it is the introduction of 'deep learning' strategies that can make the difference to retention rates. Heaton-Shrestha *et al.* (2009) conducted a qualitative analysis of student and staff perspectives on an early iteration of a virtual learning environment (VLE), 'Blackboard'. Results were mixed, with students somewhat more positive than staff about the benefits of the VLE for enhancing confidence, sense of ownership and belonging – all of which may enhance retention, particularly among non-traditional students.

In perhaps the first study to use Facebook data to determine a relationship between social media and student retention/GPA, Fagioli *et al.* (2015) tracked 17,000 students who joined the 'Schools App' within a sample of 98,000, over two years. Those who had joined the online community were more likely to stay on the programme, with subtle differences between passive and active users. The authors claimed:

This is a major step forward in how social media platforms, like Facebook, should be considered as potential tools for engagement rather than mechanisms of distraction (*Fagioli et al. 2015, p. 3*)

Their study contributes to the emerging evidence that building online communities can support students' sense of belonging.

Students' varied access to technology has been highlighted as a problem. In an attempt to rectify access issues, Hughey and Manco (2012) hired out digital learning bundles loaded on mini-computers (including digital textbooks and online support) to students requiring developmental courses. These tended to be low-income, first-generation students whose graduation rates were just 38%, compared to 68% of students who did not require developmental programmes. The results showed no statistical difference in retention rates, but the authors conclude the study contributed to the:

growing understanding of the complex interaction between technology and the learning process. As the use of computers and advanced communication technologies becomes more ubiquitous throughout our various educational institutions, including colleges and universities, it is imperative that we continue to explore how their use continues to affect students on a number of levels. (*Hughey and Manco 2012, p. 550*)

Other studies that address the lack of digital skills, with varying degrees of impact, include an online orientation course to support students in transition to online learning (Koehnke 2013) and the use of electronic portfolios to help first-year transition and enhance career aspirations (Sandler 2010). Finally, Tobin (2014) presents an overview of how the use of Universal Design for Learning (UDL) principles has the potential to enhance student retention. Although not an evaluative study, it outlines clear recommendations for enhancing *all* students' access to online learning, not just those students with disabilities, with which UDL is more commonly associated.

The challenges facing students using online learning, often independently for the first time, remain manifold. The literature presents a picture of lack of 'readiness' for engaging with online tools; a pervading lack of technological and digital skills (do not assume all students are 'digital natives'); poor course expectations and delivery; and psychological issues such as lack of confidence, anxiety, domestic pressures, and lack of motivation (Malik 2014). Further research into this area is required.

4.5.3 Tutoring and advisory programmes

Educational scholars suggests that academic advising or tutoring has the potential to play an important role in enhancing student engagement and retention, but we found few studies that demonstrated significant scalar impact on retention rates. However, the value of academic and pastoral tutoring (or advising as it is sometimes known in the US) is aptly demonstrated through a number of smaller, qualitative studies.

Drake (2011) wrote an inspiring account of the power of academic advising, focusing on one of her students at risk of dropping out due to feeling disconnected with his peers. She argues that advising should not be solely prescriptive but should explore personal and pastoral elements of the student's experience at university since the advisor is often the only faculty member who cares about an individual student's progress. Parsons (2012) conducted a phenomenological study of six first-generation, female students, a group with a particularly high attrition rate at their institution. She explores experiences of being on the national, Federally-funded TRiO programme of academic advice and support and shows that 97% of those enrolled in TRiO continue their studies into the second year.

Some studies have attempted to show a relationship between time spent in tutoring sessions and retention rates, but the evidence is sparse. Grillo and Leist (2013) found some support for the hypothesis that more tutorial time is associated with higher retention and graduation rates, using six years of data, but call for further research into the relationship. Two forms of tutoring appear in the literature: one where students voluntarily attend tutorials or advisory appointments; and another where appointments are made for them, reminders are sent, and attendance is expected if not mandated for programme credits (called proactive or intrusive advising in the US). Schwebel *et al.* (2012) cite the earliest research publication about reducing attrition rates through intrusive academic advising (Glennen 1975), which showed a dramatic reduction in attrition rates in first-years who had received this form of advising (from 45% to 6% over two years). However, in their four-year randomised control study of 501 students, although student contact time was increased with advisors in the group who received intrusive support, no significant impact was reported on retention and graduation rates. They consider whether this might have been different if students had been mandated to attend. The mechanics of "Intrusive Advisement" are explored by Zelazek (2011) and clear guidelines given for academic advisors – including the level of 'intrusion' which is required, and the possibility of enticing back students who have left. He reports the impact of such intrusive advising over ten years in terms of a 63% graduation rate compared to 54% for colleagues not employing the techniques. While increases in retention rates are not as dramatic as Glennen (1975) once found, the evidence points towards proactive tutoring playing a significant part in the retention jigsaw.

4.6 Support

This section looks at the role of specific support-orientated interventions that may form part of, but often stand beyond, the formal curriculum. The areas covered are learning communities, careers counselling, counselling, mentoring and peer support, and specific study support and skills-based initiatives.

4.6.1 Learning communities

There is widespread use of "learning communities" in US HE, with the first being introduced in the 1930s based on work of Dewey and Meikeljohn (in Hollands 2012). Different types of learning community (LC) include: curriculum (linking two or more courses together), accommodation, targeted group, and classroom-based. The learning community is designed to encourage interaction between faculty and students, and between students, to develop academic skills of critical reading and writing, and to build a culture of success and aspiration. Despite growing interest in learning communities, some concerns and challenges regarding student integration beyond these 'comfort zones' have been identified in the literature.

Three studies describe and analyse curricular-based learning communities. Buch and Spaulding (2011) explored the impact of a Psychology learning community on six

cohorts of students between 2003 and 2008. Retention of LC students reached 91%, compared to 80% not involved, although students were self-selecting. They report on advantages including increased student engagement with faculty and peers and inclusion of active learning approaches, and conclude that creation of such communities is an “effective, cost-conscious, and flexible undergraduate curricular strategy” (2011, p. 77). In Iowa State University, a learning community was created for all first years and transition students on disparate geoscience programmes, called ‘Earth Wind and Fire’. Building on a 15-year history of over 70 learning communities rooted in Lave and Wenger’s (1991) seminal work on ‘communities of practice’, the community comprises a multitude of activities designed to generate a sense of belonging and identity, such as social events, careers talks, field trips, peer mentors, coffee with faculty, and study groups. The evaluation shows demonstrable improvement to GPA and retention figures (Cervato and Flory 2015). A similar programme showed increases in retention of engineering students at-risk of early withdrawal (Ricks *et al.* 2014). The final example is of a learning community for Chemistry students, studied by deProphetis Driscoll *et al.* (2010). The authors’ claim that increases in the number of Chemistry graduates, in particular female students, can be attributed to the learning community and inclusive approach.

Learning communities can be introduced to offer support for a particular student demographic at risk of attrition. Drawing on Tinto’s work on student integration theory, Hollands’ (2012) study shows demonstrable impact on African-American and Latino students who are enrolled within a predominately white university and brought into the Minority Participation Program (learning community). Themes emerging included increased sense of belonging, learning to negotiate racial discrimination, increased personal motivations, and navigating their way successfully through the first year. Another study worked with Latino students in a career-based learning community (Sandoval-Lucero *et al.* 2011). Just one example was found of a ‘living-learning’ community where first-year students were assigned to live in “academic theme floors” and “freshmen interest groups” (Purdie and Rosser 2011). The latter showed improvements in retention scores.

Despite encouraging data in the literature included above, McIntosh (2012) could find no significant difference in the graduation figures for those involved in a LC in thirteen institutions, but did find some improvement of retention from first to second year. This highlights the importance of separating out interventions that address retention rates at key ‘moments’ in a student’s life-cycle from their overall goal of completing a degree measured by graduation rates.

4.6.2 Careers

There is limited available literature on this form of intervention. While there is some evidence suggesting that enrolment in a careers programme early in a student’s university career positively impacts upon their likelihood to persist with their studies,

evidence is lacking of effectiveness beyond the second year transition. A recent study looking specifically for impact through to graduation found no statistical significance in retention or graduation of students involved in careers courses (Grier-Reed and Chahla 2015). Other studies include Connor *et al.* (2013), Donjanea (2011), and French (2013) but again no demonstrable impact on retention is found beyond the first year. Williams (2012) found some impact on students' determination to remain in college. Peck (2011) presents a subtle twist on careers advice, using "peer involvement advisors" to improve first-year student engagement and retention. His results show a 95% retention rate for those who engaged compared with 89% of those who did not.

4.6.3 Counselling programmes

A specific cause of students dropping out of university in their first year is their failure to adjust to the different lifestyle and expectations of HE. As in the UK, US institutions have reported a rise in student distress (Gallagher 2003). Attending university can be an uncertain time, where feelings of anxiety, low self-esteem, loneliness, lack of a sense of belonging, and uncertainty over their life purpose, can lead to distress and personal crisis; again, this can affect first year and transition (direct-entry) students more than those in senior years. Emotional distress often leads to poor academic performance and can provoke dropout.

Lee *et al.* (2009) reported on the impact of a college counselling service on students' academic performance and likelihood of retention, and showed students who accessed the service were three times more likely to re-register for the third semester, compared to a control group who had not received counselling, although there was no significant impact on academic performance. The impact was not dependent on the quantity or length of counselling. A qualitative study conducted into the effect of counselling on non-traditional students indicated that it increased their desire to continue with their studies (Meek 2013). In an example of innovative practice, Stebleton and Schmidt (2010) developed the role of student affairs practitioner to support students within learning communities in a community college. The article indicates the potential value of this role but no comprehensive evaluation of the intervention was provided.

Counselling services are expensive and institutions are often looking for ways to reduce expenditure. One study looked to replicate the treatment of examination anxiety by a trained counsellor with an automated procedure using a pre-recorded CD (Driscoll and Holt 2012). Results show students in the treatment group showed a slight increase in grade achievement and another study is underway to evaluate the effect on student retention rates. Pearson (2012) has written a literature review of the support available for HE students, concluding with an argument for the creation of a dedicated student support role able to offer a blend of academic, personal, and career-related support. When counselling fails, another study shows how faculty can

use a relationship-based model with disadvantaged students to help them make more informed decisions about their education (Jefferson 2010). The study is a rich source of stories concerning educational decision-making and finds that student-staff relationships are key to success.

4.6.4 Student-to-student mentoring

Boyle *et al.* (2010) note the lack of literature on student-to-student mentoring in distance learning. They analyse an overlooked, relatively cost-effective, and 'simple' solution to address high rates of drop-out from distance learning programmes – engaging advanced students as mentors for new students. One study conducted across three countries showed positive increases in retention rates for mentored students. In the UK, of the nineteen students given mentors on their online courses in the Open University, 89% were retained compared with 67% non-mentored students. They calculate the "benefit per student retained" to be £8 for student retained from a £1 investment. In the Korean contribution to the paper results improve by 5% and 14% in 2007 and 2008 for mentored students, and in New Zealand, qualitative results were gained from the 125 students mentored. All three projects showed improvements but limitations were identified, concluding that mentoring appeals to motivated students. They hinted at the potential for 'study-dating' websites that could match potential study partners or mentors.

In a study from the UK, Collings *et al.* (2014) investigated the role of peer-mentoring in increasing retention. Again, they highlight the lack of evidential literature on peer mentoring and call for further studies. Tinto's model is used to underpin the focus of peer mentoring on the welfare of students and navigational support for the first year. A total of 109 participants filled in two surveys five days and ten weeks into the first year and results show that students at the non-peer mentoring university were four times more likely to consider dropping out than those in the peer-mentoring institution. In addition, data gathered from the Mapping peer-led academic learning UK survey for the HEA in 2014 found a raft of benefits for students who offer peer support as well as receive it (Keenan 2014). Students in receipt of peer learning support described increased academic and personal confidence in the transition to higher education, as well as increased engagement and higher grades.

A Canadian study targeted high rates of attrition in the STEM subjects, where two out of every five students fail to graduate (Larose *et al.* 2011). Their research project – based on a socio-motivational mentoring model – evaluates a Science-based programme. Here, each mentor is drawn from science and engineering programmes at the university, assigned five students, trained, and then instructed to meet each mentee once every two weeks over the course of the first year. Results indicated that 86% mentees were retained on the course after their first year, compared to 76% non-mentees. Once again, the authors highlight the lack of

rigorous evaluations of mentoring programmes. Leslie's (2012) thesis offers an overview of the literature surrounding mentoring effectiveness and seeks academic consensus on the value of this form of intervention.

4.6.5 Study support and skills-based interventions

The concept of developmental programmes has a long history in US HE, but the term emerged in the 1970s as discourse moved away from remedial education towards one of developing human potential. With access to HE far wider than in previous generations, many institutions are finding that students are underprepared for the demands of an academic programme. In the UK, a series of reports commissioned by the HEA explores students' mathematical and statistical skills as they make the transition into higher education across a range of disciplines.⁸ Cruz-Johnson (2012) presents a literature review in her doctoral thesis that explores the outcomes for US students who are deemed unready for academic demands and placed in developmental programmes in English, Mathematics, and/or academic writing. She notes that developmental programmes prolong the time that students spend in college, usually carry no credits towards the degree, are costly to the US economy, and particularly costly for the students. Success rates for such programmes are by no means consistent, with some studies reporting significant increases in retention and graduation success (Castleman 2010), and others, like Cruz-Johnson's study of blended developmental programmes, showing that rates differ very little.

Additional support programmes can address skills-deficits in targeted populations. Cerezo and McWhirter (2012) evaluate an intervention designed to improve social awareness skills of Latino students and report a partial improvement in retention. Mature learners (over 25) form a substantial proportion of the student population in the US (i.e. around one-third), and the provision of 'targeted guidance' is explored by Culp *et al.* (2014). Another targeted study examines the impact of enabling suspended students to enrol on a new 'Learning Skills Support Program' (LSSP) where they attend a skills course, meet with advisor regularly, and have to maintain a 2.0 GPA over its duration (Dill *et al.* 2011). Results show that 75% met the requirements for early re-admission and 65% continued the programme, compared with just 22% in the control group, thus increasing overall retention rates. Finally, in this section, Manalo *et al.* (2010) present a comprehensive and useful summary of learning support programmes across New Zealand, which includes the delineation of "critical success factors" and an action plan for institutions to follow should they wish to implement the programme.

⁸ See, for example, Cottee *et al.* 2014 (Business); Field 2014 (Psychology); Jones and Golding 2014 (Sociology); Shallcross and Yates 2014 (Chemistry); Dawson 2014 (Economics); Souch *et al.* 2014 (Geography).

4.6.6 *The future of retention research: the use of institutional analytics*

Unlike in the US, where decades of data point to certain groups experiencing continued disadvantage in HE (low income, working poor, African Americans, Hispanics, part-time students, etc.), the UK has a more confused picture. National studies have shown that lower socio-economic groups and working-class males are at a particular disadvantage, as well as black and minority ethnic (BME) groups with black males at the chief disadvantage (Hillman and Robinson 2016). More recent work has identified care-leavers as a group who experience considerable disadvantage in accessing HE and persisting through to graduation (Jackson *et al.* 2005; Cotton *et al.* 2014). Some studies argue the importance of conducting a thorough assessment of local patterns within the institution (Gansemer-Topf 2013). The increased gathering of institutional data or 'learner analytics' offers much potential to identify 'at-risk' students and offer timely and appropriate support as needed. We identify this as an emerging trend as more institutions invest time and resources in developing or sourcing analytical programs to analyse their big data. At the time of this review, we found three papers that speak directly to the use of analytics for addressing retention and graduation rates.

Although not a study of a specific intervention, McCluckie (2014) notes the value of using institutional and learner analytics to identify those at risk of withdrawal. He discusses an early warning system that triggers when students reach a certain level of non-attendance (less than 50%) in the first five weeks of semester, thus offering an opportunity for interventions to be bespoke, targeted, and timely. A form of 'just-in-time' intervention, students are either advised to leave early, minimising the cost and disruption, or offered advice and guidance to remain. Miller and Bell's (2016) research shows how more sophisticated measures of risk can be calculated based on a number of variables. Four levels of persistence probability are identified, from dark green (persistence likelihood > 85%) through to red (persistence likelihood < 55%). Those in the red category are flagged as requiring communication and possible intervention. The results show a rise in non-traditional students' persistence compared to historical rates, but implications for staff workload are also identified. Being in possession of institutional and learner analytics is not sufficient on its own; rather, they need to be applied in a careful and structured way, with strategic co-ordination between senior management, staff, and students (Witt *et al.* 2016).

Many studies in this review have highlighted the complex nature of retention and the need for systemic change (Mayer *et al.* 2015b; Sabin 2012; Litchfield 2013; DesJardins and McCall 2010; Talbert 2012; Menifield 2013). Retention includes the interplay of interconnected and dynamic variables such as curriculum, social interaction, intrinsic motivation, economic status, etc. Forsman *et al.* (2014, 2015) acknowledge that complexity has been apparent in much of the literature, but note that few studies grasp the idea fully by applying complexity theory. In their study, they use this theory and apply suitable analytical tools such as the Multilayer Minimum Spanning Tree (MMST) analysis that allows the creation of a network of

correlated data. They conclude that using this systemic analysis allows deeper understanding of why interventions to increase retention have not been successful, or only partially so, and argue that future interventions must be broader in scope.

The 'completion by design' programme funded by the Bill and Melinda Gates Foundation is an example of how HEIs can be encouraged to design their own suite of interventions, based around principles including: accelerated entry; minimal need to get 'college-ready'; clarifying the requirements to succeed; customising instruction with integrated student support; monitoring student progress giving feedback; rewarding successful study behaviours; using technology for learning. The following are eight important factors required for effective systemic change – flexible vision, senior leadership, distributed leadership, communication and engagement, incentives, professional development, resources, and visible actions. Grossman *et al.* (2015) chart the response of faculty and support staff to educational reforms and conclude that:

successful systemic change is change that most students across the entire college experience and that fundamentally shifts staff's beliefs about their actions or the mission. (Grossman *et al.* 2015. p. 8)

4.7 Limitations and gaps in the literature

There is little recent literature from outside the US with clearly defined outcomes. What evidence exists largely stems from the Aimhigher programme, and there is a need to consider interventions that might be effective in the current climate. There is a need for the UK and the rest of Europe to contribute further to this canon of literature that shows what works in retention. Thomas (2012) provides the most recent effort to assess the effectiveness of interventions, but even here there is an acknowledgement that it has proved difficult to translate theoretical understandings of retention into practical interventions with clear effectiveness.⁹ The sector requires studies that aim to be more extensive, comprehensive, and rigorous. McGrath and Burd (2012) highlight the methodological problem of studies that show comparison groups where one group volunteered to attend a programme or take part in an intervention and join others in the call for randomised control trials in some quarters. This route should be followed with caution, with such studies needing to be extremely mindful of the ethical implications of withholding interventions for certain groups in education. There are some specific areas where more research is needed:

⁹ Following a successful first phase the Paul Hamlyn Foundation funded the HEA and Action on Access to develop, deliver and evaluate Phase 2 of the programme. This second phase - What works? student retention and success change programme - is about identifying and implementing whole-institutional approaches to improving student retention and success. The programme's final report will be published on 11 April 2017 <https://www.heacademy.ac.uk/enhancement/themes/retention-and-success/what-works-student-retention-and-success-change-programme>

- the relative benefits of institutional versus national aid;
- the impact of timely interventions with financial assistance;
- the use of technology enhanced learning and online learning;
- the role of peer mentoring in both online and face-to-face learning;
- the role of curricular reform, including assessment practices;
- students' transition between two and four year degrees in the US and between further education (FE) and HE in UK (direct entry);
- the part that extra-curricular involvement plays and ways in which this can be further encouraged.

On a final note, much research time and effort has been invested into trying to establish causality between certain variables or certain interventions. Many of the studies included here conclude that retention is complex and can only be dealt with in a holistic and systematic way. We suggest that such exploratory studies may no longer be needed to the extent that they were in previous years and call for more attention to be directed towards studies of larger, institution-wide intervention 'packages' that show the impact on retention rates of the entire programme, such as CUNY's Accelerated Study in Associate Programs (ASAP) (Scrivener *et al.* 2015).

5. Attainment

5.1 Overview

The term 'attainment' embraces a host of definitions. In the UK it is often associated with the degree classification awarded to a student (first, upper second, etc.) but it is also more broadly used to describe graduation rates, GPA scores (in the US), completion of degree programme, and even attainment of modular credits. Closely associated with student achievement, these terms are used interchangeably here. Marks for developmental programmes are also included as these are often indicators of whether a student progresses through to the next semester and completes their degree. Hence, the interventions included here cover a range of 'moments' in the student life cycle, including first-year programmes, developmental programmes, raising GPA scores throughout the degree programme, as well as emphasis on increasing student engagement in a more general sense.

Often termed the attainment, achievement, or education 'gap', the difference between the attainment scores and graduation rates of traditional and non-traditional students (as interpreted in a specific national context) has been an acknowledged issue in HE, and of increasing concern in the light of widening participation of historically excluded groups. In the UK, evidence has accrued over nearly two decades that demonstrates that non-white British students (including Chinese, British Asian, black British, and mixed heritage) are less likely to attain a

good degree than their white peers, once prior qualifications are taken into account (Richardson 2015, 2010).¹⁰ Richardson (2015, p. 280) remarks that “the odds of a non-White student obtaining a good degree are about half those of a White student obtaining a good degree” and there are other variations between UK students. Iannelli and Huang’s (2014) study of Chinese student achievement since 1998 finds that Chinese students are less likely to achieve a good degree than UK or other international students, showing a marked increase in third-class degrees over time. A report by Stevenson and Whelan (2013) for the HEA presents a series of recommendations for the UK HE sector based on a comprehensive review of the US literature on retention, attainment, progression and completion of black and minority ethnic (BME) students. More recently, it has become clear that women out-perform men at university (the gender gap), with a particular emphasis on the poor attainment of working-class men in both the UK and America (Jacob 2002).

In the US, the attainment gap between ‘traditional’ white students and students from under-represented groups (African-Americans, Native Americans, Hispanics, low income, first generation, etc.) has been strikingly apparent since the admission of these groups to colleges and universities began in the late 1960s (Lodhavia 2009; Skinner 2013). In the past decade, attempts to close the gap have gathered momentum. Described as being largely invisible on many campuses, inequitable educational outcomes for non-traditional students need to be tackled using an organisational learning perspective to address the engrained cultural and social practices within the educational establishment that hinder attainment of these groups (Bensimon 2005). Bensimon suggests that one of the first steps towards closing the gap is for the institution to be aware of the problem by, for example, disaggregating data along racial and ethnic lines. This affirms the importance of using institutional data to compare achievement across student groups and subjects (Wood 2014).

Indicators of post-secondary success include high GPA, gaining adequate credits by the end of the first year, passing developmental courses if required (Hein *et al.* 2013), and high levels of engagement (McKlenney *et al.* 2012). It is widely believed that the maintenance of high academic performance (GPA or other accumulated module credit ratings) is a key indicator of student retention, attainment, and likelihood of graduation (Clery and Topper 2010). In their study of an American intervention *Achieving the dream*, Clery and Topper (2010) followed a cohort of students over five years and gathered academic scores at the end of the first and second years. They found, unsurprisingly, that students with above 2.0 GPA were more likely to persist with their studies and graduate after five years, and those with GPAs of 3.5 or higher were most likely to complete. Of students with GPA of 2.0 or

¹⁰ A ‘good’ degree is a first or upper second class degree in the UK classification scale.

lower, those least likely to persist and complete in five years were from African-American, Native American, and Hispanic groups. Specifically, GPA in the *first semester* is a strong predictor of under-represented students' success within six years (Gerschenfeld *et al.* 2016).

The barriers to attainment are manifold and include failure to adjust to college or university, financial and transportation obstacles, and requirement for developmental support (David *et al.* 2013). However, González Canché and Rios-Aguilar (2014) argue that a more critical lens is required to understand the complexity behind students' persistence and attainment, and that research needs to shift from its default deficit mode. They use social network theory and analysis to demonstrate the agency of students as 'nodes' within a network of ties (relationships, likes and dislikes, actions, and transfer of resources) connecting them to other social actors, including organisations, events, and people.

A more intense focus on formal structures of peer network formation and affiliation within the college setting is clearly needed if we aspire to understand how underrepresented students can more successfully achieve their personal, academic, and professional goals. (González Canché and Rios-Aguilar 2014, p. 79)

Aside from the personal consequences of not securing a degree, good or otherwise, low attainment has direct implications for nation states. For example, the US is concerned that its workforce is becoming less well educated and competitive and, as such, increasing attainment is a burgeoning challenge (CED 2012). The recent launch of the *Stronger nation* (2016) report from the Lumina Foundation hails the slow but incremental increase of degree attainment across the nation, where the percentage of working age people (25-64 years) with a college degree has risen to 45.3% this year. Although recently increasing, Hispanic students remain the lowest achievers of college degrees at 26%. The ambitious *Goal 2025* is to see college attainment rise to 60%; with the aim of increasing national competitiveness and improving equity among the minority and white populations. The foundation is working to embed a "strong student success agenda" across US HE (2016, p. 5).

Interventions designed to increase student attainment and completion of degrees must consider those students most at risk of failing. Surprisingly, despite the solid literature base describing the problems facing minority students, we found few studies that directly targeted the attainment of specific ethnic groups in the US, the UK, or elsewhere. Calling increasing attainment a national imperative, Miller *et al.* (2014) present a coherent and aspirational "access to attainment" agenda that recognises issues that occur throughout the student pipeline in the US and establishes five guiding principles to improve national attainment rates: create a college-*going* culture; clarify and strengthen pathways to college; make college affordable; create a college-*completion* culture; and increase college access and attainment (Miller *et al.* 2014). This chapter examines the evidence for the impact of interventions drawn mostly from the US that address the latter two, including

general structural and procedural changes, pedagogical interventions, and provision of study support packages.

5.2 Assessment of evidence

5.3 General structural and procedural interventions

While most of the literature relates to the interventions that individual institutions can make to improve student attainment, some researchers have turned their attention to wider structural and institutional processes that affect students' capacity to succeed at college or university.

5.4 Finance

Despite the rise in tuition fees and maintenance costs of going to college or university, the impact on attainment of students' socio-economic position and financial expenditure of institutions has been the focus of just a handful of research studies. El Fattal (2014) asked in his doctoral thesis whether "money matters for student success" and examined the relationship between institutional expenditure and student outcomes. His quantitative analysis of community college expenditure in California revealed a strong correlation between socio-economic status (SES) and student outcomes: "SES is an input variable that is considered to be a primary determinant of outcomes" (p. 173). Interestingly, he found that institutions in areas of low socio-economic status (SES) spent proportionally more on student services and administration than those in higher SES areas, in order to address students' lack of academic preparedness for HE. These institutions had lower attainment scores. Conversely, with fewer students to support, those institutions in areas of higher SES were able to spend more on direct classroom instruction than their lower SES counterparts and achieved higher results. This study raises important questions about the role of socio-economic status of the area in which the university is located, and whether institutions in low SES regions can ever hope to match the attainment scores of higher SES institutions. This study adds weight to the argument that the forthcoming TEF must take account of the socio-economic status of each institution and of the students they predominantly attract (BIS 2016). El Fattal's recommendations for policy and practice make important reading for institutional management teams tasked with raising student attainment while juggling diminishing budgets.

Jones and Ewell (2009, p. 24) present a comprehensive account of how the College Access and Completion Innovation Fund in the US "holds great promise" to address Obama's call for more graduates by 2020, using a combination of statewide funded interventions. They outline a set of criteria against which all state funding allocations should be measured and recommend innovation projects that involve engagement of employers in the promotion of higher education, development of prior learning

accreditation capacity, and a systemic approach to providing developmental support programmes, among others.

Studies show that the socio-economic status (SES) of a student is strongly associated with their academic success, although the picture is less clear elsewhere (e.g. Taiwan: Wu and Bai 2015). Low SES students tend to achieve lower outcomes at a slower pace than their wealthier peers. However, it is not a straightforward correlation that can be mitigated with financial input, and the evidence around the value of financial aid for raising attainment paints a mixed picture (Clery and Topper 2010; Cheng *et al.* 2012). Mayer *et al.* (2015b) highlight the difficulty of measuring the impact of financial interventions on academic success. In a testimony to the Advisory Committee on Student Financial Assistance, they recommended innovations including provision of year-round financial aid, the realignment of work-study options, and earlier notification of students' "satisfactory academic progress" to enhance motivation to complete. Stater (2015, p. 784) describes financial aid as the "most readily available policy instrument for governments and institutions" and found in his study of three public universities that financial aid packages do have a measurable impact on raising student GPAs, with the caveat that merit-based systems worked better than needs-based systems, supporting the shift towards performance-based aid. However, the individual variables associated with low SES (such as lack of preparedness for academic study, lower test scores in English and Mathematics, and weaker social support networks) can be addressed through other interventions, the most convincing of which are included below.

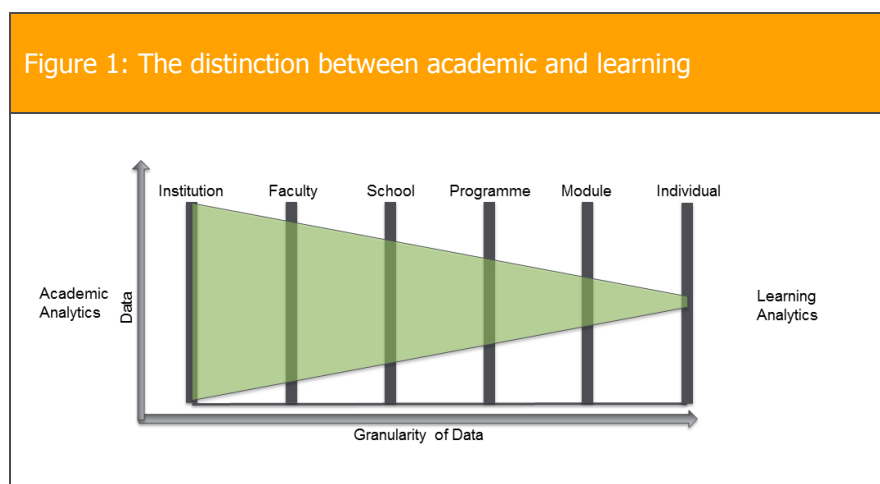
In the US, some states enable students to enrol in a local HE establishment while they are still at high school, enabling them to work towards credits for both high school diplomas and higher degrees. Originally designed for the most able students, this 'dual enrolment' is now open to all students with an interest in a technical career (Westcott 2009). Several studies were found that relate to its efficacy in raising attainment. An (2013) claims that moderate improvements in attainment scores have been observed from using this intervention, although a What Works Clearinghouse review of his report says caution must be exercised when groups are self-selecting (WWC 2013). Wang *et al.* (2015) find more substantial evidence that dual enrolment has a positive impact on generating academic momentum and increasing completion rates. In a comparative study of traditional students and dual-enrolled students, Westcott (2009) presents evidence to support the premise that dual enrolment improves attainment and increases the speed of degrees completion.

Another issue that impacts on attainment is *prior learning*. In a study conducted in Stockholm, Brygen (2016) found negligible evidence that ability grouping or 'streaming' in secondary school had an impact on students' subsequent attainment in higher education. A US study looked at the College-Level Examination Program (CLEP) and demonstrated that non-traditional students and military personnel can be credited for prior learning outside of college (Barry 2013). This large-scale study

compared students who took at least one CLEP examination with traditional, non-CLEP students, with results showing that CLEP students are more likely to complete their degrees quickly and have higher GPAs. A mixed methods British study (Shaw 2012) showed that work experience gained before entering university had a significant bearing on students' perceptions of their ability to find graduate work, although a comparison of degree results showed no difference between those entering with academic and vocational qualifications. In a HEA study, Shields and Masardo (2015) found that students with vocational qualifications (such as BTEC) who enter university tend to be from areas of low SES, are more likely to be older and male, have a lower entry tariff, and are also less likely to attain a 'good' first or upper second class degree. These three studies provide evidence for the discrepancies in attainment between traditional students and students entering from more vocational backgrounds but fall short on providing solutions. More interventions are clearly needed that address this gap.

5.5 The use of data to drive improvements in attainment

The production and utilisation of large academic and institutional data sets and learning analytics is gathering momentum in HE. As attention has shifted from access to retention and completion rates, institutional data are necessary to assess the current situation, gauge where the issues lie, and identify how progress can be made.



(Witt *et al.* 2016. Reproduced with permission.)

At the other end of the scale, with a higher level of granularity, learning analytics can highlight levels of student engagement through tracking individual students' attendance and attainment, often via data that is being updated daily. These analytics can then contribute to strategies and interventions on module, programme, school, faculty, and institutional levels (Witt *et al.* 2016). Sector initiatives are underway to grapple with this trend in the UK, and include the JISC-funded service-creation project 'Effective Learning Analytics' (<https://www.jisc.ac.uk/rd/projects/effective-learning-analytics>).

A number of studies explore this growing trend of data-driven interventions. Ifill *et al.* (2016) present a first sweep of the US national *2012-14 Beginning postsecondary students longitudinal study* (BPS 12/14). A wide range of statistics is tabled but analysis and discussion of the statistics have yet to be produced. Similarly, the University of Porto, Portugal has introduced a complex range of classification (pass or fail prediction) and regression (grade prediction) algorithms to measure levels of student success and failure, and to identify the factors associated with these (Strecht *et al.* 2015).

Within institutions, data are now being used to raise attainment within programmes of study. Over the past decade, HEIs have overseen a substantial shift from more traditional curriculum-based assessment to outcomes-based assessment. Whether the students have achieved a programme's *learning outcomes*, rather than the quality of the curriculum content, is now the important measure of a programme's success (Ibrahim *et al.* 2015). The development of various tools to measure the attainment of these outcomes is the subject of several papers. Ibrahim *et al.* (2015) introduced a web-based course-assessment tool that allows the programme team to detect where outcomes are not being met and thus where improvements need to be implemented. Their study showed that there was an increase in attainment following the implementation of the tool. In contrast, Lawson *et al.* (2015) discuss the complexities of mapping learning outcomes or graduate attributes across the curriculum. In their Australian study, while they noted that mapping outcomes across the curriculum was now commonplace, they found that 60% of Business school faculty members had not yet started to gather specific data about attainment of learning outcomes. Challenges to making this next step were identified including academic workload, lack of 'buy-in' from academics, issues of large student numbers and scale, and sustainability of data collection over time. As described in the 'Retention' chapter (Ch. 3), data sets can also be harnessed to identify students at risk of academic difficulties that may result in withdrawal and, as a consequence, lack of degree attainment (Johnson 2013).

A controversial, but oft-proposed, solution to raising attainment has been to re-consider student recruitment criteria, to ensure students have the necessary academic abilities before they embark upon a degree programme. A study of student nurse recruitment and prediction of outcomes over five years indicated that selection criteria should be considered, particularly the upper-secondary grade that the authors found to be a key predictor in successful completion (Lancia *et al.* 2013). This call for access criteria to be narrowed to ensure higher completion rates is understandable as it aims to ensure a steady supply of nurses into the national health services, in Italy in this case. However, as mentioned earlier in this report, Pickel and Bragg (2015) offer an important reminder of the need to retain focus on both attainment *and* access to ensure a more equitable education system in the future:

Although this emphasis on college completion is logical and important, it is problematic if access is not given an equally high priority. Left unchecked, an emphasis on college completion without attention to access may lead to greater inequities among student groups than that have existed in the past. Post-secondary educators throughout the country need methods to understand how their programs and practices, already stratified by race, ethnicity, and income, affect student outcomes. (Peckel and Bragg 2015, p. 44)

The focus of their chapter is the Pathways to Results (PTR) programme created by the Office of Community College Research and Leadership (OCCRL) in the US. It uses a mixture of quantitative data and narratives to explore an institution's student recruitment demographic and to identify issues in inequity of access and attainment. The authors ask questions around equity of access among under-represented groups following disaggregation of student characteristics and outcomes data for an associate nursing degree in an Illinois college, and present solutions that could be transferable to other HEI contexts.

5.6 Teaching and learning interventions

Improving the quality of the teaching and learning experiences of every student is important to all HEIs. An essential element of the institutional quality assurance process, educational development is also used to address specific concerns over issues arising in departments, subjects, or institutions. However, evidence that links improvements in the teaching and learning experience to higher attainment is tenuous.

By far the bulk of papers identified in this literature search relate to pedagogical interventions made at an institutional, departmental, or individual level. Some papers directly address the 'gap' between traditional and non-traditional student attainment. In the UK, Richardson (2010) remarked that only half of the "attainment gap" in students from ethnic minorities can be attributed to differences in academic ability as shown through entry qualifications, and suggests that it is differences in *teaching and learning practices* in different institutions, and different subjects, that account for variables in attainment. He states that "we do not know what aspects of teaching and assessment practices in higher education might be responsible for variations in the attainment gap" (2010, p. 288), but it is possible that there is some form of unconscious or institutional bias occurring, a point further highlighted in the 'Why is my curriculum white?' campaign in universities across the UK (El Magd 2016). For example, O'Hagan (2015) shows there is a distinct difference in marking essays from native English speakers and non-native speakers and that teaching staff require 'socialisation' and training to recognise the different way they approach assessment. Research by Cotton *et al.* (2015) indicates that, despite claiming that they did not 'see' the gender or ethnicity of their students, academic staff were nonetheless influenced by stereotypes about different student groups. More research is clearly

needed around differences in pedagogical approaches and student–teacher relationships with BME and international students.

5.6.1 Student engagement and active learning

A series of papers, predominantly from the US, explored the potential for educational activities to enhance student engagement, a key predictor of attainment and completion. In a meta-analysis of studies that consider elements of effective teaching, Kyriakides *et al.* (2013) create a dynamic model of educational effectiveness that isolates eight factors that articulate teachers' roles and how these are associated with student outcomes. Revealingly, just 6% of the selected papers related to the tertiary sector, indicating a real need for further research to measure learning outcomes in this sector. Fauria and Filler (2015) discuss how a lack of engagement can exhibit in the "swirling behaviours" of students who enrol in more than one institution while pursuing a degree and that these are negatively associated with degree completion. Kuh *et al.* (2006) took 19 items from the National Survey of Student Engagement (NSSE) and collated them into a composite score for "educational purposeful engagement". Following Kuh's definition of engagement as, "the time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in these activities" (2003, p. 25; in Fauria and Filler 2015), these 19 items were termed Educationally Purposeful Activities (EPAs). Startlingly, they found that the majority of EPAs had no cumulative impact on student GPA; just two activities were highlighted as having an effect – offering prompt feedback on work and encouraging questions in class.

In a contrasting study, Price and Tovar (2014) asked a straightforward and important research question: Is there a statistically significant correlation between student engagement, as measured by benchmarks in the Community College Survey of Student Engagement (CCSSE), and national completion rates? They analysed CCSSE data to measure the effect of student engagement on completion rates in community colleges across the US and found a clear correlation between engagement and completion. Active and collaborative learning, as well as support for learners, had most impact. Their strong empirical evidence lends valuable momentum to the agenda of improving quality of teaching and learning support in universities and helpful recommendations for changes to faculty practice are suggested. They argue:

The challenge with this completion agenda is that no single solution is a panacea. Several strategies will likely be needed to address this challenge including increasing the academic preparation of students who graduate high school; aligning high school and adult education curriculum to college and career readiness standards; facilitating stronger connections between workforce education and training and postsecondary education system; leveraging student financial aid more effectively; and improving educational practices by colleges so more students already enrolled. (*Price and Tovar 2014, p. 2*)

But the picture is indistinct. Another study (Michel *et al.* 2009) highlights the limited evidence that active learning has a positive impact on student outcomes:

Although researchers intuitively suppose that active learning should be superior to passive learning, such superiority has proved somewhat difficult to quantify. (*Whetten and Clark 1996; in Michel et al. 2009, p. 398*)

Defining active learning as an approach that might include experiential, problem-based, participative, and co-operative learning, their study compares the student outcomes of an active teaching approach versus a more traditional, passive approach and finds no conclusive evidence that an active approach improves broad cognitive outcomes, although some improvements in class-based outcomes were noted. The authors recognise the methodological limitations of such a study, suggesting that active learning constitutes such a plethora of activities that it may not be possible to say that *all* forms of active learning have limited effect on outcomes. In addition, the impact of active learning on more affective elements of student outcomes (e.g. confidence, levels of critical thinking, ability to work in teams, employability levels) is less tangible and measurable, yet equally valid and relevant to favourable student outcomes. The degree to which teaching staff are conversant with, and engaged in, active pedagogy lends a further layer of complexity.

Research has been conducted that explores the notion of active learning in pedagogically specific research projects. Chace (2014) initiated collaborative projects in an introductory science module and demonstrated an increase in student attainment of those who participated. Zafra-Gómez *et al.* (2015) considered the impact of inquiry based learning (IB) on student achievement and satisfaction and found that involvement in IB activities increases both. In particular, attendance in class increased, which had a significant impact on attainment, possibly fuelled by a perceived relevance of the teaching method and motivation gained from this. Other studies with positive results of specific pedagogical approaches include visualisation for engineering students (Study 2011) and the use of business models (Halbesleben and Wheeler 2009). Fike *et al.* (2010) targeted a specific group of Hispanic students on a professional pharmacy degree and showed that by using the Keller method of splitting content into shorter modules, placing materials online in a flipped classroom

approach, and employing self-directed learning, student attainment was improved. This study further demonstrates the value of including pedagogical approaches in the institutional armoury for improving attainment for non-traditional students. In a longitudinal and qualitative study in the US, Sakai (2014) interviewed 74 mostly non-traditional students on an 'Early Childhood Practitioner' programme to discover their perceptions of what helped them achieve at university and what obstacles they had faced. Results showed that a flexible programme structure and convenient location were essential in creating a context for student success, alongside financial aid and other learning support programmes that had been built into the degree. The graduation rates of the six cohorts averaged 81%, more than double that of the typical student transferring between two and four year institutions.

Assessment and evaluation

Considering the evidence that assessment practices can negatively impact certain non-traditional students' attainment (O'Hagan and Wigglesworth 2015), interventions in assessment practices and outcomes receive surprisingly little attention in the literature. Two studies stand out: Spearing (2014) conducted pre-test/post-test evaluation of an intervention in a postgraduate Physiotherapy programme at Manchester Metropolitan University. In order to facilitate students' transition towards the higher levels of assessment demanded from them, two sessions were held to inform them about assessment requirements and criteria. Significant improvement was demonstrated in the group who had received the intervention. Mulder *et al.* (2014) present a case study that shows the value of engaging students in peer review of their work.

Building a culture of review and evaluation of the efficacy of teaching and learning approaches is a crucial step towards improving student engagement and attainment. Two studies present evidence about introducing regular assessment of teaching and review of the curriculum. Troisi (2014) uses a pre-test/post-test methodology to examine the role of student management teams (SMT) in improving attainment on four Psychology modules. In a SMT, a small team of students work closely with the teacher to evaluate the curriculum and instigate changes to enhance student engagement. The study presents the first empirical evidence that SMT significantly improve the performance of students, although the author warns of the study's limitations as the students involved in the SMT itself demonstrated the most improvement. Paolini (2015) highlights the lack of standardised measures of assessing teacher performance and efficacy of teaching approaches in HE, compared with the compulsory sector. She outlines the three means of assessing 'teaching excellence': student evaluation, peer reviews from colleagues, and self-reflection. She provides a comprehensive account of how teachers can improve their own teaching and concludes that:

The most impactful student-centered instructors utilize specific interventions including the following: creating stimulating curricula, interacting with students, being available and approachable, using differential instruction, addressing relevant material, being cognizant of depth vs. breadth, offering cultural responsiveness, and developing structured courses that enable them to facilitate information and empower students. (Paolini 2015, p. 30)

Class size and student–teacher relationship

Another pressing concern is the increase in class sizes and its potential detrimental effect on student engagement and outcomes (Monks and Schmidt 2010). Chapman and Ludlow (2015) explore this issue in some granularity in a micro study of just one lecturer in one university, which measured perceived learning as determined by three student evaluation questions; the degree to which they have retained factual information, acquired academic skills, and learnt principles and concepts. Other variables included were teacher availability and students' evaluation of the teacher. The authors claim that, while student effort (time spent on studies) and teacher input accounts for 77% of perceived learning, "it is also clear that class size exerts an independent negative influence on perceived student learning" (2015, p. 117). They suggest that institutions should weigh the detrimental costs of large class sizes on student attainment against the financial savings of teaching to large groups, particularly in the first year.

Two studies explored the impact of a good student–teacher relationship or rapport on attainment. Wilson and Ryan (2013) used the 'Professor–Student Rapport Scale' to examine how far it could be viewed as a predictor of student grade attainment and found that the questions relating to the ways in which the teacher elicits student engagement was a positive predictor of student achievement. The quality of the interaction between student and teacher was further explored in a neuroscientific and behavioural psychological study by Zhou (2012), who investigated how far the psychological device of imitation contributed to the building of effective relationships between students and teachers and improving student outcomes.

5.6.2 Technology-enhanced learning

There has been rapid growth in technology enhanced learning (TEL) in HE over the past decade, where it has become a cornerstone of the drive towards more inclusive teaching. Blended learning approaches, where online delivery is mixed with traditional face-to-face sessions, offer a variety of pedagogical input for students. TEL has grown in favour for a number of reasons: its flexible, study-when-ever-wherever approach has facilitated the learning of off-campus students with long commutes to college; it is assumed to be cheaper to run than face-to-face delivery, although there is no evidence for this as Xu and Jagers (2013) attest; it is less labour intensive for teaching staff; and allows larger class sizes and more variety of courses to be offered.

A number of studies have been conducted that attempt to capture the impact of TEL approaches on student outcomes and attainment, but again the evidence should be treated with caution. Cavanaugh and Jacquemin (2015) highlight the lack of empirical evidence that online learning elicits similar learning outcomes to face-to-face learning. Using multiple regression on a substantial dataset of 5,000 courses at a large public four-year university in the US over a four-year period, they show that, overall, there was no significant variation in grade outcomes between online and face-to-face learning.¹¹ However, it was found that the most able students performed better in online learning and struggling students performed worse, a finding that has implications for assigning learning approaches to different cohorts. In contrast, Xu and Jagers (2013) find that online learning has a significant negative effect on persistence and grades, in another rigorous and large-scale data analysis of student outcomes from 23 community colleges in New York. Students on online courses were 7% more likely to withdraw and, if they persisted, achieved grades 0.3 points lower on average. They suggest that variations in attainment that arise between disadvantaged and advantaged student groups are in part influenced by the quality of online learning, and suggest that institutions may wish to analyse outcomes across their own student population.

As Xu and Jagers (2013) contend, further study is needed to examine the impact on learning outcomes of how students *engage* in online learning. Online or blended learning approaches allow students to access lecture notes, quizzes, exercises, and supplementary learning materials and there is some evidence to suggest that the more a student engages in supplementary online activities, the better their outcomes (López-Pérez *et al.* 2013; Masrur 2010). Few studies have successfully managed to isolate the impact of online learning, as variables such as interest in the subject and time spent online are also contributory factors in attainment. Although limited by a lack of control group, Mogus *et al.* (2012) demonstrated a positive correlation between frequency of activity online and students' grades. Lee *et al.* (2014) draw upon a number of theories, including flow and motivation theory, to suggest that students might learn more from multi-media materials if they are emotionally connected in some way.

Additionally, using specific TEL pedagogical approaches has some demonstrable impact on student attainment. A Business class study by Walker *et al.* (2015) using stepwise regression analysis showed that students engaging in structured discussion board activities achieved higher learning outcomes, and suggested that teachers explain the academic benefits of reading and posting on the discussion boards. The use of online quizzes as formative assessment has been examined by Marden *et al.*

11 Their findings align with Thomas L. Russell's (2001) book, 'The No Significant Difference Phenomenon' (5th Ed.), IDECC.

(2013) with large student cohorts in Australia, showing a strong correlation between success in the quizzes and summative outcomes, highlighting their predictive role. The benefit of flexibility in online learning was tested in a study of how regularly students accessed video lectures and presentations on the digital learning platform and the impact on their learning outcomes (Reinecke and Finn 2015). The study found that the higher achieving students accessed the materials in a steady fashion, while weaker students tended to access them increasingly frequently as the course progressed. Two final studies consider the role of social media (Cao *et al.* 2013) and Twitter (Junco *et al.* 2013) in raising student attainment. In a detailed analysis of 168 faculty members using social media in their teaching, Cao *et al.* (2013) found that use in the classroom had a positive impact on student outcomes, and propose a useful model of how social media can be best employed to enhance attainment.

In the shift towards professionalisation of nursing, students coming from non-traditional backgrounds have often faced difficulties in achieving the requisite academic attainment. Scholars have highlighted the need for learner-centred approaches to address this issue, such as concept-based pedagogy (Getha-Eby *et al.* 2015) and problem-based learning or PBL (Khatiban and Stangestani 2014). The authors of the latter study reported on a quasi-experimental study in Iran with around 70 students in a Nursing module, where the use of PBL showed demonstrable impact on attainment of student competences, perceptions of learning, and increased positive attitudes towards learning of those involved. Another issue facing nursing educators is how to facilitate students' acquisition of clinical skills and competences without harming real patients. The use of 'high-fidelity simulation' (HFS) in nursing education has enabled students to develop their skills in a safe, reflective space and several studies have tested the efficacy of this pedagogical technique. Decker (2014) showed an increase in students' examination scores after using HFS and Dusaj (2014) claimed significant benefits from videoing simulations and using these in student feedback sessions to elicit deeper reflection and critical thinking.

Most studies identified in this literature search entailed the design of learning and pedagogical approaches within the formal curriculum. Just two studies hint at the potential impact that extra – or co-curricular activities might have on formal learning outcomes and attainment (Storey 2010; Sevier *et al.* 2012). These suggest that further research into the correlation between co-curricular involvement and student attainment is warranted.

5.7 Supporting the curriculum

The final section of this chapter on attainment considers the impact that a range of student support can have on student outcomes. This includes learning communities, peer mentoring and review, study support, and social or psychological interventions.

Learning communities have been covered in some detail in Chapter 4, but one paper links the creation of a Psychology learning community directly to the raising of student attainment and progression to degree completion, as well as to the likelihood of persistence. The study by Buch and Spaulding (2011) shows students in the learning community were 10% more likely to complete their six-year degrees than those not involved. Activities within the community included networking and social events, increased exposure to psychological principles and concepts, a new module on the science and practice of Psychology, and the employment of active learning techniques that enabled increased contact among peers.

Learning from peers has also been shown to increase student attainment through peer mentoring programmes in the first year. Although it is an example of a piecemeal intervention in the first-year programme of one university, Goff's study (2011) found that participation in a peer-mentoring scheme accounted for a small increase in academic achievement, after high school GPA and attendance had been factored in. Another mixed-methods study (Mulder *et al.* 2014) demonstrated that engaging third-year students in peer review had a significant impact on summative grades for the majority of students, with the largest increases being in students below the median grade. Most students reported that the peer review process had been worthwhile, and that they had benefited from an increased understanding of assessment criteria and benchmarking among their cohort.

5.8 Study support and developmental programmes

Four papers from across the world present the impact of developmental and study support programmes on student attainment. Baik and Grieg (2009) discuss the relative benefits of discipline-specific versus generic developmental language assistance programmes for non-native English speakers in Australian universities. They conducted a study on the impact that a weekly 90-minute discipline-specific language tutorial had on student outcomes when it was run alongside regular classes in Architecture. The results showed that 100% students found the programme useful and over 70% found the review of lectures most beneficial. The programme yielded significant success with those students who attended most frequently obtaining 100% pass rates, compared to their previous 63.8%.

Other studies have demonstrated the value of library services in raising student attainment. Figa *et al.* (2009) created a comprehensive library support programme for students enrolled in online programmes that elicited positive student evaluations. Another study by Wong and Cmor (2011) attempted to measure the association between library instruction and student outcomes in a large-scale statistical analysis of 8,000 students at Hong Kong Baptist University. Results revealed that the more library workshops students attended, the stronger the increase in GPA; the limitations of the study, however, included a lack of inclusion of variables such as student motivation. Finally, the Library Impact Data Project funded by JISC in the UK

examined the hypothesis that library usage is associated with higher levels of student attainment (Stone *et al.* 2013). Data were gathered for three indicators: the usage of e-learning resources; library borrowing statistics; and number of times a student accessed the library through library gate data. The study demonstrated a significant correlation between library usage and degree attainment, specifically around the usage of resources and library borrowing.

A familiar refrain in this literature review, and as the studies included above attest, it is difficult to isolate the impact of individual interventions on student attainment. Thus, evaluations of comprehensive programmes incorporating a number of interventions over a longer period of time, such as the Accelerated Study in Associate Programs (ASAP) in the City University of New York (CUNY), provide a useful guide for institutions looking for evidence-based interventions (Scrivener and Weiss 2013). Targeted at students requiring developmental programmes, particularly those from low-income backgrounds, and using a random assignment design, the ASAP requires students to enrol full-time, take developmental programmes early in their academic career, and to graduate with an associate degree within three years. Other interventions include tutorials, learning support, careers advice, tuition waiver, free transport and text-books. Results from the two-year evaluation show an increase in credits earned over two years and a doubling of graduation rates compared to the control group. The evaluators describe the programme as having “a dramatic effect on students’ academic attainment”, concluding that “ASAP is a model worthy of very serious consideration” (Scrivener and Weiss 2013, p. 10).

5.9 Social and psychological interventions

In recent years, the impact of a student’s psychological state on his or her achievement has received increasing attention from educational researchers. Studies show that the introduction of small social–psychological interventions in students’ learning often yields surprisingly positive impacts on attainment (Yeager and Walton 2011). Described as “tools to target important psychological processes in schools”, and not “magic” as some have suggested, interventions target students’ feelings, assumptions, attitudes, or beliefs and attempt to disrupt these when they become detrimental to academic achievement. Yeager and Walton present a review of four successful social–psychological interventions,¹² some with astonishingly positive results, and ask whether such interventions can be scaled up. They conclude that this is an area ripe for further research and propose the role of a “psychological engineer” to advise on how and when to intervene in students’ negative thought patterns and beliefs. A more recent paper (Cohen and Garcia 2014) supports the

¹² Interventions included: asking students to watch videos of students talking about difficulties they had faced in making transition to university, the use of praise after completing tasks, value affirmation essay writing tasks, and student responses to social adversity.

contention that even small-scale interventions can have meaningful impact on students' achievement.

Other publications investigating the role of students' psychological states and their relationship with achievement include Chen and Luo's (2015) work on Taiwanese students and goal setting, and Sambo and Mohammed's (2015) use of the Academic Causal Attribution Scale (ACAS) to explore the link between achievement and internal attribution of success or failure. Stevenson (2012) highlights the interplay of structural, organisational, and cultural factors and their role in the significantly lower attainment rates of BME students in the UK. She argues that these might be attributed to students' views they hold of their academic 'possible selves' (after Markus and Nurius 1986), which may influence their uptake of academic support. Stevenson conducted qualitative research at two Russell Group universities with White and BME students and showed that white students were more able to bring their hoped-for and true possible selves together through strategies for seeking academic support, than their BME peers. Finally, Wang *et al.* (2012) conducted a study on the introduction of a social and emotional learning programme for first years in a US university. Acknowledging the potential connection between social and emotional competence and academic attainment, they compared GPA scores for those involved in the programme and those not and found some positive relationship with attainment in the first year. Limitations of the study centred on the self-selecting nature of the students in the programme, and further research is needed to determine whether such a programme would be appropriate to all students.

5.10 Limitations and gaps in the literature

We found relatively little literature relating to attainment in the classic sense of attaining a 'good' degree. Studies were more generally concerned with attainment in its widest sense of student learning – indicated through achievement of GPA throughout a programme, acquisition of credits, completion of degree, and rates of graduation. It would appear that interventions have been less focused on supporting students to achieve at a higher level than on student achievement *per se*, through completion of studies or otherwise.

There are more specific gaps in this literature. In the light of the introduction of the TEF, more structural research is certainly needed in the UK to examine how the socio-economic status and budget of institutions in poorer regions and areas of the UK affect student outcomes (after El Fattal 2014).

In the context of continued widening of participation in higher education, further research is required to evaluate the impact of interventions that utilise prior learning and vocational qualifications and to prepare non-traditional students for academic study at a higher level.

Pedagogical interventions show great promise but evidence is still limited as to their efficacy. Although many university teachers feel intuitively that improving pedagogy improves student attainment, we lack the solid evidence that shifting our teaching practices has effective impacts on outcomes. Hence, considerable research effort could be directed towards the impact of interventions in the teaching and learning experiences of students. Further use of the 'learning community' could be explored and evaluation of its capacity to increase attainment, particularly for different student groups (ethnicity, gender, etc.). The connection of extra-curricular activities with attainment is unclear, beyond its overt attachment to improving the 'employability' of students. Finally, the world of social and psychological interventions is an exciting topic of research that calls for further attention from educational and psychological scholars alike.

6. Progression

6.1 Overview

Since the last HEA review on student retention and success (Jones 2008), changes within and beyond higher education have heightened attention to student progression. Chief among these is the economic downturn. As Woodier-Harris (2010) articulates:

Being in one of the most severe economic recessions for generations and also university applications in 2009 at there [*sic*] highest, students and graduates face increasing difficulties in starting their careers, in conditions of unprecedented change. (Woodier-Harris 2010).

These challenges might be compounded by some UK students carrying a higher burden of debt since the increase, in 2012, of tuition fees from around £3,000 to as much as £9,000 per annum.

The growing employability agenda has seen institutions develop concerted efforts to support progression, even in domains of historic resistance, such as research-intensive institutions (e.g. Baker and Henson 2010). The HEA's *Framework for embedding employability in higher education* seeks to summarise some of the activity in this domain (HEA 2016b). Structural changes to mechanisms of quality assurance and funding in the UK HE sector are likely to generate even more interest in progression-related initiatives. The recent government White Paper (BIS 2016) confirmed the architecture of the TEF, through which graduate employment outcomes will, in part, determine the level to which HEIs can increase tuition fees.

The term 'progression' can refer to student progress within a degree programme (e.g. from year one to year two), but also their progress beyond the programme (i.e. to further study or employment). We focus on this latter element in this section, in line with the increasing importance of employment preparation for students. The

literature on this topic has been divided into four key areas, which reflect different ways in which student progression can be supported: careers service provision; progression within the curriculum; progression into specific pathways; and placements and professional experiences.

6.2 Assessment of evidence

6.3 On-campus initiatives

6.3.1 Careers service provision

Initiatives targeting progression are often delivered through centralised careers services, which originated around the start of the 20th century (Dey and Cruzvergara 2014). An audit of 600 American HEIs found consistent provision involving: careers counselling via appointment (98%); career fairs (94.4%); on-campus mock interviews (94.1%); help locating internships (92.7%); and workshops/programmes covering résumé and interview preparation (91.6%) (Eisner 2010). A useful way of classifying this work is to consider activities featuring a formalised structure of delivery or assessment (e.g. programmes), versus more ad hoc provision (e.g. individual career counselling appointments). Inevitably, some provision will show both types of characteristics.

McDow and Zarbrucky (2015) report on a mandatory credit-bearing employability programme in the US. In the evaluation, résumé writing and interview skills were assessed pre-intervention and post-intervention, using a standardised rubric. A statistically significant improvement in these outcomes, relative to a control group, contrasted with no change in participants' self-efficacy in job searching. The results reiterate the importance of considering psychological or dispositional components (e.g. confidence) as well as skills, as the previous chapter described. The authors noted that participants' high self-efficacy at baseline might reflect a key challenge for careers advisors – over-confidence.

Several other initiatives have been extra-curricular (e.g. the Worcester Award (UK); Watson, 2011). Baker and Henson (2010) engaged students during design of the 'Inside Employment' scheme at a research-led institution in the UK. Focus group participants felt credit-bearing status could divert time from core studies and that a 'bolt-on' format might reward students for showing initiative. Access was via a competitive application process, which may have selected students with high existing interest in progression, thus accounting for the strong retention rate (84%). By contrast, among first generation and low-SES students, Grier-Reed *et al.* (2012) observed significant dropout from a US programme, complicating efforts of evaluation. Clearly, the benefits of an extra-curricular approach, in preserving time for disciplinary study, must be weighed against potential poor retention. 'Inside Employment' utilised innovative pedagogies that developed employability attributes. Working in groups, participants from diverse programmes researched and prepared a poster for presentation to external employers. Participants reported positive

impacts on a range of instrumental skills including networking and occupational knowledge.

Meanwhile, Muldoon (2009) and Thompson *et al.* (2013) report on the New England Award (Australia) and Lancaster Award (UK), respectively, which recognise students' engagement in extra-curricular activity (e.g. volunteering, sport, paid work). Such initiatives can be a useful arena in which to introduce students to relevant online applications (e.g. LinkedIn). In some cases, anecdotal evidence directly links use of such web resources with securing employment (Peterson and Dover 2014), although more robust evaluation would be welcomed. In Muldoon's (2009) study employers indicated unanimously that they would be impressed by the award, though some would expect students to elaborate on its value. The majority of the participants were already committed to paid or voluntary work irrespective of the intervention, which coincides with findings among a cohort of Swiss students (94% did an extra-curricular activity and 62% did two or more; Roulin and Bangerter 2013). This pre-existing, interest-driven commitment appears consistent with Brown and Hesketh's (2004) conceptualisation of a 'purist' approach to extra-curricular engagement. Nonetheless, according to Roulin and Bangerter's (2013) research many individuals were aware that these activities could be repurposed to aid their efforts in the job market, as part of a 'player' strategy. In Thompson *et al.*'s (2013) qualitative study, participants reported extra-curricular engagement being helpful for résumé writing. Notwithstanding the small sample size ($n = 37$), an interesting trend emerged; men were twice as likely as women to hold leadership positions within their extra-curricular activities. This suggests that universities should monitor whether recognition opportunities are unevenly loaded towards specific student subgroups. Participants also reported difficulty in balancing extra-curricular and academic activity. Finally, the authors recognise that the novelty of such institutional awards might be compromised as other institutions follow suit. A host of similar awards now exist (see e.g. The York Award¹³; The Plymouth Award¹⁴).

Successful programmes have been reported in diverse territories. Alhwasin (2010) describes a well-received course in the United Arab Emirates; Tarigan and Wimbari (2011) report significantly improved career search self-efficacy in Indonesian students; and in Portugal, programmes targeting career self-management skills have shown promise among undergraduate (Carneiro Pinto *et al.* 2015) and postgraduate (Carneiro Pinto *et al.* 2012) students. Together with a control condition, some studies incorporated follow-up several weeks post-intervention (Tarigan and Wimbari 2011; Carneiro Pinto *et al.* 2012). While Tarigan and Wimbari (2011) found enduring increases in career search self-efficacy, Carneiro Pinto *et al.* (2012) found no significant difference in career exploration behaviours between the control

¹³ <https://www.york.ac.uk/students/work-volunteering-careers/skills/york-award/>

¹⁴ <https://www.plymouth.ac.uk/student-life/your-studies/plymouth-award>

and intervention group, suggesting possible attrition of initial effects. Findings clearly show the importance of collecting longitudinal data. Some participants in Carneiro Pinto *et al.*'s (2012) study attended an additional course in entrepreneurship. While coverage of this topic has been shown to be beneficial elsewhere (e.g. Uhlich and Missler-Behr 2013), here it was associated with increased concern over attaining a secure career path. It appears that the content of careers programmes must be carefully selected.

A number of programmes have followed a constructivist philosophy (e.g. Grier-Reed *et al.* 2009; Rutt *et al.* 2013). Two such programmes focused on development of psychological/dispositional factors (e.g. self-efficacy), as opposed to instrumental career skills (Grier-Reed *et al.* 2012; Grier-Reed and Skaar 2010). The constructivist approach involved: telling one's own story (narrative); exploring beliefs and values (action); forming an identity (construction); and using personal information to steer career direction (interpretation). Notwithstanding the absence of comparison groups, Grier-Reed *et al.* (2012) found that participants showed significant post-test improvements in career decision self-efficacy. In the 2010 study, however, there was no concurrent change in participants' decisiveness over potential progression routes, matching a similar finding among students in Hong Kong (Cheung and Arnold 2014). Such findings indicate that changes in psychological/dispositional variables may not necessarily convert into tangible progression-related behaviours.

Turning to more ad hoc provision, Hughes *et al.* (2013) also describe a constructivist approach but with delivery via one-to-one meetings between US students and career counsellors. Interestingly, the initiative contributed to a package of remedial training given to 'underprepared' students – in the US this describes 28% of all freshmen (NCES 2003). The underlying philosophy was that early support around progression might have wider benefits in terms of student engagement and retention. The question arises of where, in UK structures, there may be a similar 'stepping on point', for example, the foundation year attached to some undergraduate programmes.

Interventions like that reported by Hughes *et al.* (2013) require multiple one-to-one interactions between students and careers staff, presenting a potential resourcing issue (Christie 2016). Making novel use of the "willingness to pay paradigm", Choi *et al.* (2013) found that South Korean students were prepared to contribute an average of \$10.54 per session of career counselling. While payment for ancillary university services is an established norm in South Korea, similar moves in a UK context would be controversial. A potential solution may lie in peer counselling models, although careers services might need to retain a role in terms of co-ordination. Rowell *et al.* (2014), making use of a power analysis, found all sub-components of career decision making to be positively enhanced among group counselling participants in a US setting, relative to controls. Alongside efficiency, peer approaches might cultivate interpersonal skills (e.g. listening), which are valuable to progression. McClain and

Sampson (2013) describe a model where disparate individuals (e.g. shy, aggressive) were paired for dyadic interactions guided by a trained practitioner. The authors contend that a pair format allows less scope for 'social loafing' relative to a larger group, ensuring genuine sharing of feelings and resolution of differences. No empirical evidence is provided regarding the efficacy of the approach and, critically, students' perceptions. It should also be noted that 83% of respondents in Choi *et al.*'s (2013) study indicated a preference for individual versus group counselling. This contrasts with the effective group-counselling format applied among Latino/Latina students, as described by Berrios-Allison (2011). It is possible that there are cultural distinctions in terms of preferred support delivery, which may be a useful focus for future research.

In a novel study Carroll and Tani (2015) examined the effectiveness of student job searching as supported by Australian university careers staff, versus other approaches (e.g. answering adverts, using personal networks, and directly approaching employers). A large sample was contacted four months post-graduation and interviewed about their job status to determine those who were over-educated (i.e. in a job not requiring graduate-level education). Career service-supported job searching appeared to have a protective effect, relative to the three other approaches. With an engagement rate of only 47% it was, however, the least used approach, coinciding with similar findings among Polish students (Piróg 2016). An interesting age and gender effect emerged, whereby directly approaching employers was an effective technique for men over 25, but no other sub-groups. This highlights the need for careers services to consider characteristics of users when providing guidance. In a US setting, the "Virtual Job Club", described by Maietta (2012), also centred on job searching. Participants were encouraged to create LinkedIn profiles, so gaining a valuable lasting resource. To retain the dialogic character of a "bricks and mortar" jobs club, discussion forums were used, with students trading opportunities and experiences of job hunting, as well as posting personal goals and benchmarks for peers to review. Trained careers personnel monitored discussions, feeding in targeted guidance. The forum's asynchronous nature meant that it was more flexible and accessible than scheduled physical meetings. Testimonies from participants suggested value, although a full empirical evaluation was not provided.

Relatively few studies compare the efficacy of careers service provision and other approaches. Boettcher (2009) found that although US careers services enhanced users' understanding of how their degree contributed to progression, interactions with non-careers staff (e.g. lecturers, family) had greater impact. At a detailed level, on-campus interviews and online resources were found to be effective, while the bedrock initiatives of one-to-one counselling and workshops were not. It should be noted, however, that detailed information on graduates' progression destinations was not presented.

Clearly, careers services are not the only source of support that students' access regarding progression. In a study of networks and career decision-making in the UK, Greenbank (2011) found that working-class and middle-class students were more likely to consult parents and lecturers, than friends, extended family or careers advisers. While some parents may provide a rich source of reassurance, in accordance with concepts of social capital those from working-class origins may not be able to impart well-informed guidance regarding the graduate job market. Evidence in this area is, however, mixed. Cheung and Arnold (2014) found that career advice from lecturing staff was predictive of career decision self-efficacy, whereas family support was not. There may be value from capitalising on established patterns of student consultation outside careers services. For example, Watts (2006) describes the 'integrated delivery' model, whereby careers services work in conjunction with academic staff. However, attempts to locate academic staff at the heart of careers support (e.g. through personal tutoring) must consider the existing pressures on staff-student ratios (Grant 2006).

In interpreting the efficacy of initiatives, it is important to consider how they support those facing the sternest challenges in terms of accessing employment or further study. Burns *et al.* (2013) identified a positive association between satisfaction with careers services and career decision self-efficacy. The relationship was moderated by overall self-efficacy, such that those with the lowest levels benefitted most from a positive experience of careers support. Investigators have also examined effects among students with low socio-economic status (e.g. Grier-Reed and Ganuza 2012). Doyle's (2011) review in this sphere identified a host of good ideas, although the supporting empirical basis was not directly presented. Recommendations included avoiding jargon, which can compromise those with low social capital; frequent employer visits by careers personnel to retain knowledge of the job market; involvement of students in service design; extending careers support to students for two years post-graduation; and embedding employability across courses to familiarise and normalise the topic area.

According to Roessler *et al.* (2009):

career assessment and planning services that enable students with disabilities to make successful transitions from higher education to careers are an important component often missing in the postsecondary educational experience. (Roessler *et al.* 2009, p. 126)

Petcu *et al.* (2015) examined the efficacy of US employment support services for students with intellectual/developmental disabilities in post-secondary settings including universities. The national survey confirmed that these students receive a familiar range of provision (e.g. counselling, career or vocational assessment, career exploration). Notably, only a small proportion gained access to work placements (< 7%), despite hypothesised benefits for securing eventual employment. Moreover,

placement support for these students was limited. Oswald *et al.* (2015) outline a comprehensive multi-pronged initiative for disabled students, which incorporated work experience. Working together, students and a vocational support counsellor carefully identify needs (e.g. assistive technology, personal care) in the work placement and potential funding sources. Alongside positive case studies, the authors report a 40% employment rate at five-year follow-up, which is considered strong for this cohort. Additional positive case studies provided by Roessler *et al.* (2009) relate to the use of multiple validated questionnaires to identify disabled students' vocational interests and disability-related limitations, culminating in a personalised plan of required technology or modifications. In a US context, only 26% of two-year and four-year degree granting institutions are delivering such an approach, targeted at disabled students (Raue and Lewis 2011), with figures for the UK unknown.

It is worth considering the resources associated with some careers services provision. For example, participants in Carneiro Pinto *et al.*'s (2012) Portuguese programme experienced up to 22 hours of delivery, while Rettew (2012) evaluated a US course comprising eight bouts of motivational interviewing, after which changes in constructs such as career decision self-efficacy were not statistically different from the control group. Technology may partially reduce delivery load, permitting, for example, a flipped classroom approach (Dey and Cruzvergara 2014). According to Venable's (2010) review of synchronous (e.g. virtual rooms) and asynchronous (e.g. podcasts, video) methods for career support, there is no set template for effective provision. Furthermore, there is some evidence that face-to-face interaction between students and careers advisors remains important. In a US context Bridges (2014) found that careers assessment and virtual careers fairs – both online activities – received the lowest appraisals. Qualitative responses indicate that students appreciate counsellors making an emotional connection with them. This 'humanised' approach might be particularly important for certain key groups, such as students with low socio-economic status (Doyle 2011). In considering how to tackle "a lack of proactivity", through which students fail to take advantage of careers advice, Greenbank (2011) suggested that advisors need to get to know students and nurture their confidence in asking for advice, ideally in small groups. Some HEIs have invested in computer-assisted career guidance systems, through which individuals can complete tasks at a time and place of their choosing. Tirpak (2013) evaluates one such system – FOCUS-2 – as well as reviewing the general literature surrounding this approach. Users showed improvements in career decision-making self-efficacy, although the author suggests that students should also receive subsequent personal interaction to make sense of the outputs. One unexpected finding was that FOCUS-2 users developed more pessimistic attributions for career-related events (i.e. perceiving events as driven by external forces and not modifiable through personal agency).

In describing a 21st-century careers service, Dey and Cruzvergara (2014) outline a “connected communities” model, which goes beyond a “transactional” approach of information provision; instead, connecting students with meaningful opportunities for experiential learning, mentoring, internships and employment. Careers services must forge relationships with external professional stakeholders and also, where appropriate, other education providers. Hayden and Ledwith (2014) describe how universities in the US engage with two-year colleges where many students begin their higher education, to achieve a coherent package of progression-related support. An analogy exists with UK universities, many of which have strong links with FE colleges that deliver foundation degrees. The challenge of delivering good central careers services should not be underestimated: with the massification of student numbers, careers advisers report being limited to short exchanges with students (Christie 2016). They also face challenges in keeping abreast of current labour markets (Alhwasin 2010; Doyle 2011) – which are internationalised and complex. One approach may be to track online job advertisements, which account for 70% of all job advertisements (Altstadt 2011). This would enable accurate advice to be provided to students and provide a focus for structured careers programmes that cultivate the key skills emerging as valuable to employers.

6.3.2 Progression within the curriculum

Aside from central careers services, many institutions have embedded progression-related themes into the formal curriculum. A multi-faceted course for Business students aimed at developing ‘soft skills’ (e.g. communication, team-building, leadership), received positive appraisals from US students and employers (Winstead *et al.* 2009). In other cases, the emphasis is on a highly specific skill. For example, responding to the limited relevance of an academic writing style in professional settings, one Canadian intervention aimed at enhancing participants’ occupational writing skills (Coyle 2010). Academic staff identified discipline-specific writing skills needed in analogous career roles, developed learning activities that provided practice in these forms of writing, and designed assignments to replicate real world outputs (e.g. professional documents). In another example, aimed at addressing the gaps in English language skills of some Indian Engineering students (thought to compromise their employment prospects), Clement and Murugavel (2015) suggest that teaching sessions should be more interactive to provide opportunities to develop language competence. Through careful pedagogic design, generic skills such as these could be enhanced through existing modules without restructuring the programme or increasing assessment load.

Another technique is to invite guest speakers – typically established figures from relevant professions – to contribute via presentations (e.g. Cummins *et al.* 2015). Riebe *et al.* (2013) found that exposure to guest lecturers increased students’ understanding of the importance of cultivating five key employment skills, including problem-solving and self-management. There was an interesting disparity, whereby native Australian students reported interest and engagement as essential in guest

lecturers, while international students most valued those who vividly depicted the real-life challenges of the working world. In a UK context, although the guest lecturing initiative described by Willmott (2011) was an extra-curricular adjunct, the author offers several relevant ideas for good practice including the use of social media (e.g. Facebook, LinkedIn) to approach alumni as potential contributors. Third party platforms (i.e. WordPress) were used to host material related to the guest lectures, such that it was not restricted to those with an institutional log-in, and would remain accessible to recent graduates. It should be noted, however, that among the isolated attempts at making comparative analyses of different forms of progression support, guest lectures emerged as less effective than other initiatives such as placements for Tanzanian students (Ishengoma and Vaaland 2016).

In several studies, progression-related skills were cultivated via experiential learning. Avramenko (2012) reports on a UK business simulation module aimed at improving employability. To counter the risk, that participants engaged in shallow gaming – as opposed to deeper learning – the computer-based element of the task was minimised, with emphasis placed on reflection. Immediately after engagement, students reported increased confidence and ability to apply disciplinary theories. Importantly, they were contacted one year following graduation, with many confirming the value of the module in preparing them for real-world scenarios. Kuijpers and Meijers (2012) large-scale survey of students in vocational HE in the Netherlands suggested that career competencies (e.g. reflection and networking) were linked to practice-based or enquiry-based curricula. Of central importance was the opportunity for students to engage in a 'career dialogue', where they discussed real-life experiences that they had encountered in terms of personal and societal relevance. Reporting on responses of staff and graduates from eight UK HEIs, Mason (2009) found that explicit efforts by departments to teach employability skills had little associate with labour market outcomes (e.g. attainment of graduate level employment). Moswela and Chiparo (2015) stress that where experiential learning is proposed within the curriculum sufficient resources must be made available to ensure that teaching and learning methods do not regress to the traditional transmissive style.

A German initiative described by Uhlich and Missler-Behr (2013) focused on developing students' disposition towards entrepreneurship and self-employment through relevant classroom-based courses. In a single sample pre-test and post-test design there were significant improvements in measures of entrepreneurial competence for individuals who, at entry, did not indicate an interest in this form of work. Interestingly, for counterparts who did express interest at entry, there was a decline in the same measures. The authors explain that this may be an adaptive result, should it indicate a growing sense of realism among enthusiastic would-be entrepreneurs to diffuse over-confidence. There were also differences between other groups, with younger participants, women and those from certain disciplines showing less entrepreneurial attitudes.

In some cases, a progression-focused activity has been identified as an alternative to the final year dissertation. In a US setting Gifford *et al.* (2011) describe such a 'capstone' project in the field of Leadership Studies, albeit without providing extensive evaluation. Participants completed an assignment based on the delivery of a special event, while engaging with the institution's careers service to help develop résumé writing and interviewing techniques. While this initiative compelled students to engage with a realistic professional challenge, it did not require direct participation in a work setting. By contrast, final semester postgraduate students in the UK study described by O'Leary (2015) interacted with real-life clients to produce a bespoke client report, along with a presentation and reflective piece. Over a five-year window this approach was favoured over a traditional thesis by 60% of programme participants. The author notes practical considerations when delivering such an involved learning opportunity, such as the need to maintain a network of accommodating employers to avoid overloading individual partners, and the value of introducing dedicated administrative support (e.g. in the form of an enterprise officer), where engagement in the capstone reaches critical levels. Indeed, among the motives behind Gifford *et al.*'s (2011) more cautious initiative were difficulties in securing sufficient internship opportunities and student reports of inconsistent internship experiences.

There is evidence that different student groups may experience uneven benefits from progression-focused initiatives. For example, in testing a model of undergraduate competence in employability skills, Jackson (2014) observed lower scores among Asian-born participants versus native Australians. The authors note that the former group often have a higher inclination towards discipline-specific skills development, as opposed to generic skills like team working. At the same time, the existence of both overt prejudice and unconscious bias means that some groups face heightened challenges in making successful transitions to employment, raising the question whether tailored curricula might be of value. White (2009) describes a US course in Leadership and Professional Development aimed at African Americans. As well as cultivating familiar skills around interview techniques, it covered specific challenges that participants may encounter, such as racism. Among participants, 86% give favourable appraisals about gaining information and skills to succeed.

It is notable that many curricular interventions in this category come from similar disciplines such as Business Studies and Leadership. For highly applied fields (e.g. those in health-related subjects), it may be that the curriculum is already highly focused on real-life working situations. It is unclear, however, why Arts and Humanities should be less represented. Possible explanations include the less-defined nature of potential progression routes from these disciplines or resistance to the employability agenda within the disciplinary communities.

Curricular-based initiatives often take place over a longer time frame than interactions with careers services. Consequently, they offer an opportunity for

students to master new learning methods and technologies. Antonio and Tuffley (2015) describe a study that sought to shift students' focus on external sources (e.g. lecturers, peers) to self-discovery and reflection. Individuals used the 'Scoop.it' tool to collate digital materials related to an IT career, as well as completing a 1,000-word essay. The authors note the importance of initiating students to any new technology, rather than assuming IT literacy. Activities based around researching individual jobs have been successful elsewhere in addressing career anxiety and decision-making confusion (Thrift *et al.* 2012). According to Yu (2011) electronic portfolios are of interest to employers, either as an initial means of screening job applicants or later in the recruitment process, as a stimulus for in-depth discussion. In Antonio and Tuffley's (2015) study, most students reported that Scoop.it helped them to clarify their goals (75%) and was enjoyable to work with (86%). Tellingly, however, only 43% reported an intention to use their account after the end of the structured programme, a finding that echoes Woodley and Sims's (2011) study of the PebblePad e-portfolio tool in an Australian assessed professional development module. There is a clear need for long-term evaluation to demonstrate students' ongoing commitment to maintaining e-portfolios and similar tools.

A group of studies have considered how international experiences within the curriculum impact on progression. An audit of US Business programmes by Eaton and Kleshinski (2014) found that 50% of institutions required second language proficiency; 46% required internationally focused classes and 100% offered study abroad opportunities, all of which constitute skills for employability. In terms of perceived skills for international careers, Wang (2013) observed additive effects from a study abroad placement (e.g. 1-6 months in an Asian county), compared to participation in a US on-campus programme. This contrasts with Farris (2012), who found that although study abroad improved individuals' self-confidence for travel, there was no overall change in career decision self-efficacy. Heiden (2012) also found no evidence that study abroad improved progression prospects for US engineering students. Employer feedback indicated that other co-curricular activities (e.g. internships) weighed more heavily during recruitment decisions.

In discussing the curriculum as a vehicle for delivering progression-related activity, it is worth considering the regulatory frameworks through which academic programmes are devised and managed. Jenkins (2012) describes moves in one US state to roll out a standardised curriculum in all public two-year degree-awarding institutions. The rationale for this is to ensure transferability of credit and common standards. Interestingly, no difference in employability prospects was identified between locally derived curricula, state-mandated curricula, or curricula written under a hybrid approach. This may be of interest to UK HEIs, with their proud tradition of independent course design and assessment. While there are strong arguments for protecting universities' autonomy regarding teaching provision, it may be appropriate to consider the type of progression-related opportunities that should be uniformly available to students. According to Garwe (2014), for example, all

Zimbabwean HEIs include an element of assessed work-related learning in their curricula. Many students are reported to secure employment with their placement host. In African contexts, employers are also consulted during initial design of the programme (Garwe 2014) and, critically, their cyclical revalidation (Moswela and Chiparo 2015), providing opportunities to check that the curriculum remains relevant in a rapidly changing environment. While there may be similar practice in many UK HEIs, some do not engage in cyclical revalidation of programmes, leaving it unclear how harmony is achieved between the academic curriculum and the emerging requirements of the job market (Altstadt 2011). Centring programme design on student (or staff) interests (Blackman 2009), without sufficient thought for progression routes, might pre-ordain difficulties following graduation.

6.3.3 Progression into specific pathways

In some areas, student progression is focused on specific vocational pathways, rather than developing general skills. Typically, these initiatives focus on students in health-related disciplines, encouraging their commitment to the profession analogous to their degree (e.g. nursing), or on promoting entry to an academic/research career for STEM students. In both cases, the intention may be to fulfil labour market needs, so ensuring that any investment of public funds represents good value. In the health disciplines, several initiatives involved attendance at career-focused events; either single-shot (Yilmaz *et al.* 2016) or multiple sessions (Lever 2010; Kneipp *et al.* 2014; Cheng *et al.* 2015). Commonly, content revolved around career planning skills and exploring different career roles aligned with the discipline. Some initiatives, however, had a novel focus. One, for instance, supported US nursing students in challenging stereotypical representations of the profession (Kneipp *et al.* 2014), while another developed Taiwanese medical students' awareness of ethical/legal matters (Cheng *et al.* 2015). Participants frequently reported favourable outcomes regarding knowledge of career options (Lever 2010), development of transferable skills such as communication (Cheng *et al.* 2015), and self-assurance in facing misconceptions about their role (Kneipp *et al.* 2009). Yilmaz *et al.* (2016) report statistically significant enhancements post-intervention in terms of Turkish nursing students' career plans, confidence in avoiding employment problems, and interest in pursuing postgraduate study. Cheng *et al.* (2015) also found significant pre-post differences, regarding how medical students would select their specialism (e.g. personal interest or quality of life considerations). Notably, however, there was no change in reported intention to work in critical/emergency care versus less essential medical roles.

A slightly different school of research examines progression into academic careers (e.g. Foote 2010). For example, analyses of undergraduate participants in a research module showed that individuals' aspiration to pursue a research career was significantly related to their level of research-related skill and self-efficacy (Adedokun *et al.* 2013). The lack of a comparison group, however, prevented a definitive conclusion that engagement in undergraduate research nurtures these variables.

Several years post-graduation, Yaffe (2014) contacted alumni of a US undergraduate Biology degree that had a significant research component, alongside a comparison group of medical students who had little research experience. Questionnaire responses cited undergraduate research as pivotal in clarifying individuals' interest and aptitude for research careers. A separate qualitative study by Adedokun *et al.* (2012) sought to identify specific aspects of undergraduate research that influence career aspirations. Research experiences were found to increase awareness of related career options via networking; clarify the appeal of such a career through enabling participants to build confidence, skills and research identity; and enhance professional credentials through recommendations, publications, and awards. A career in academia or research is likely to be preceded by postgraduate study. However, having investigated transitions between undergraduate and postgraduate study in the UK, Mellors-Bourne *et al.* (2016) identified few overt strategies for promoting this form of progression, suggesting a need for further research in the area.

Turning to postgraduate research (PGR) students, Crede *et al.* (2010) describe a programme of preparation for academic careers based on a 'communities of practice' model. Facilitated by an enhanced stipend and funding for conference attendance, the US participants gradually take more responsibility within their departments, becoming 'stewards' of their discipline, especially around teaching and learning. Meanwhile, Byars-Winston *et al.* (2011) discuss the 'TEAM-Science' scheme, focused on career training for PGR students from under-represented minority groups in the US. The five tenets are mentor training for research advisors; eight consensus-derived competencies; career coaching by a senior faculty member; an individualised career plan; and SWOT analysis. Both initiatives reported favourable participant feedback, however, neither tracked participants into post-qualification employment.

In the discipline of food science, Roberts *et al.* (2010) report on a ten week summer science programme centred around independent research projects and its effect on US undergraduates' intention to enter careers or advanced training. Among participants from 2000 to 2009, extended follow-up showed high numbers majoring in food science and pursuing relevant postgraduate study or employment, including under-represented minorities (e.g. African Americans). Given the competitive application process and absence of a matched sample, the scheme may have attracted individuals with high existing career motivation. Nonetheless, this represents a rare attempt to track actual career outcomes.

6.4 Placements and professional experiences

A number of initiatives have provided opportunities for professional experience via placements or internships. In a retrospective survey of US Food Science graduates, respondents frequently reported that extra-curricular engagements, including internships, had been as important to their career development as course work

(Bohlscheid and Clark 2012). While extra-curricular placements may limit disruption to the academic curriculum, Eden (2014) argues that the greatest value is from encouraging students to reflect in-depth on experiences (e.g. through a 1,500 word reflective essay). However, ensuring engagement with such activities might be more problematic in an extra-curricular approach that does not contribute to the student's academic award.

Some authors have noted benefits of work-integrated approaches, where placement opportunities (and the wider curriculum) are shaped by consultation with professional stakeholders. Fitzgerald *et al.* (2014) describes the US Business – Higher Education Forum (BHEF) Initiative, within which 20 large projects have been established. The template is for HEIs to engage with employers from local industries, who then provide applied problem tasks and access to experiential learning opportunities on corporate premises, as well as being invited to contribute to the shaping of the broader curriculum. Thus, the employer's role perfuses beyond the fixed timeframe associated with traditional work placements. As an ongoing initiative, full evaluation in terms of progression to employment with collaborating firms is not yet available. In the UK Mason (2009) assessed employment outcomes six months after university; these appeared better among graduates from programmes that involved employers in course design. More research would be welcome into the impact of broadening the range of stakeholders who are consulted during course design and re-approval.

Another initiative – Student Placements for Entrepreneurs in Education (SPEED) – encouraged UK students to create their own start-up business (Woodier-Harris 2010). As a counter to the mere 7% of students who engage in entrepreneurial activity (Hannon 2007), SPEED participants had nine months to develop business ideas, supported by a £4,500 bursary and established entrepreneurs. Participation could be full-time (requiring a temporary interruption of academic work, as with many traditional placement modules) or part-time, alongside study. The project was delivered by 13 UK HEIs, suggesting a potential model of co-operative learning design that would save individual institutions from 'reinventing the wheel'. Furthermore, participant data indicated that 37% came from web and computer games disciplines, 20% from art and fashion, and 20% from media. The healthy presence of arts-based subjects here contrasts with their under-representation elsewhere. It may be that job trajectories for the arts are less clear-cut and that entrepreneurial approaches provide greater flexibility in identifying bespoke progression opportunities. Eighty per cent of participants were male, aligning with other research from Germany indicating that women showed less affinity with the idea of self-employment (Uhlich and Missler-Behr 2013), and suggests that further work to understand gendered perspectives of entrepreneurial initiatives is required. An emerging form of opportunity, which also warrants greater examination, is that of international placement opportunities, with Benedict-Augustine's (2010) case studies of US students the only literature identified.

The Australian initiative described by Reddan and Rauchle (2012) recognised that progression-related activities need not be mutually exclusive. Thus, students participated in work-integrated learning (minimum 80 hours), as well as engaging in generic career preparation training (e.g. job searching techniques, résumé preparation). Such hybrid approaches might develop instrumental skills and provide the stimulus for experiential learning and deeper reflection. Interestingly, the course was moved from a pass/fail basis – as favoured in several progression-related modules in UKHE – to graded marking, following input from students that the change would increase motivation and prestige. On a relevant note, Taylor and Hooley (2014) conducted a quasi-experiment study among students at a UK business school. The authors compared students in a control condition against those who received (a) an employability module or (b) the employability module plus a placement experience. Outcome measures were taken from the sector-wide Destination of Leavers from Higher Education (DLHE) survey. In terms of employment rate, six months post-graduation the both the module group (70%) and module plus placement group (79%) surpassed the controls (39%). Furthermore, of those employed, the respective proportion in graduate-level jobs was higher in the module (57%) and module plus placement (91%) groups, versus controls (30%). While the results suggest value in the module, there appears to have been a strong additive benefit of the placement itself, especially in terms of securing high quality employment. Important work by Wilton (2012) does, however, sound a note of caution. Using survey data taken four years post-graduation, the author investigated the association between professional placements and employment outcomes. The sample of over 1,000 respondents comprised graduates from business and management-related fields, from 39 HEIs in the UK. While the low response rate leaves some uncertainty around the representativeness of the data, interesting findings emerged. Placement participants reported significantly enhanced employability skills (e.g. team-working, leadership) compared to their counterparts. In terms of hard employment outcomes results were, however, more equivocal; placement participants outperformed their counterparts in some measures (e.g. earnings) but lagged behind in others (e.g. proportion in managerial type jobs). Long term follow up, such as this, is rare and essential for building a more robust understanding about the impact of placements. Future research might explore key mediators, such as the quality of professional placements which, according to Wilton (2012), can be variable.

A series of studies report on a specific form of placement – service learning. The approach combines community service and academic learning via practical experiences. Hayward's (2014) paper provides a rich exemplar of a service learning initiative although it is within a vocational field (automotive engineering). In the investigations specific to HE, students engaged with local school children to deliver activities relating to their discipline (e.g. Biomedical Sciences: Laursen *et al.* 2012; Design: Butcher 2009), an aspect of the school curriculum (e.g. Ethics: Lewis 2011) or careers guidance (Coulter-Kern *et al.* 2013). In terms of impact, Coulter-Kern *et*

al. (2013) found that relative to a control group, participants who delivered career training to US high school pupils reported greater understanding of how people choose careers, which could inform their own decision making. Participants in several studies also reported that adopting the role of educator developed transferable skills of importance in employment, such as time management (Butcher 2009; Lewis 2011) and writing a compelling résumé (Laursen *et al.* 2012). In some cases, the experience of service opened participants' eyes to the potential of an education-focused career (Butcher 2009; Laursen *et al.* 2012). Indeed, as the only study to provide long-term tracking, Laursen *et al.* (2012) found that 58% of participants were subsequently employed in an educational role, with 82% trained to do so – far exceeding national averages for similar graduates. An interesting by-product of service learning initiatives is how they introduce school children to the notion of advanced study thus contributing to the 'access' agenda. Indeed, Laursen *et al.* (2012) estimated that the US 'Science Squad' initiative brought postgraduate volunteers into contact with 15,000 pupils and 270 teachers annually.

Several studies provide useful information on the practicalities of providing placement opportunities. In describing internship activities at one UK university, Helyer and Lee (2014) note the importance of dedicated staff in maintaining relationships with an often-diverse pool of employers. They describe how recruitment of an external consultant helped engage a greater breadth of employers, possibly contributing to a rise in the links with small and medium-sized enterprises (SMEs), many of whom had not previously considered hosting an intern. The extent of private involvement may include organisations operating the placement programme itself, with the HEI offering certification, though care would be needed to ensure HEIs meet regulatory expectations (i.e. 'Chapter B10: Managing HE provision with others', from the UK Quality Code for HE, QAA 2013). Meanwhile, Walsh and Byrne (2013) write from the perspective of employers in placement schemes. An accessible placement manager is identified as important, alongside priority treatment of key employers using customer retention techniques (e.g. frequent strategic communication). Such approaches can help retain employer commitment, reducing the need for new employer relationships.

Concerns over the availability of sufficient placement providers may lead to the consideration of different models of experiential learning. In Japan, where a government-backed drive has called for greater progression-related opportunities, a job-shadowing approach has been trialled. Students follow an established employee in a host organisation, without necessarily engaging with the organisation's business activities (Sakoda and Takahashi 2014). A lack of comparative research prevents firm judgement on the level of immersion in professional life that is required for student development. Shadowing does, however, appear to contrast with the heavy commitment made by students in some placement schemes. For instance, students at the 15 universities in Zimbabwe are obliged to complete at least eight months of work placement (Garwe 2014). Meanwhile, in a Tanzanian context, Ishengoma and

Vaaland (2016) observed how compulsory placements achieved a 'diffusion model', with the contributions from interns critical in developing the knowledge and capability of the local hosts. Triangulating feedback from students, academics and employers, the authors found that the practical placement experiences consistently outperformed other components such as guest speakers and sabbaticals in industry for lecturers, in terms of perceived impact on employability. Cheung and Arnold (2014) identified slightly different results: among Hong Kong students the positive effects of internships being similar in scale to a seminar-based programme. When evaluating internship schemes it may be essential to consider the type of work completed. In an Australian context Jackson's (2014) general examination of student employment found that both number of hours worked and years in supervisory or autonomous roles were associated with employment competence. Conversely, there was a negative association between competence and working under constant supervision.

6.4.1 Other forms of work

It should also be acknowledged that many students work at university outside of formal placement schemes, often for financial reasons, as mentioned in Chapter 4. In the US, the well-established Federal Work-Study system remunerates students for on-campus work. Despite an underlying motivation of the scheme being student retention, an analysis also showed a 2.4% advantage in employment rate at six-year follow-up (Scott-Clayton and Minaya 2014). In a UK context, Blake and Worsdale (2009) examined students' self-initiated paid term-time employment, which sat aside from their studies. The authors found that a meaningful proportion of students were engaged in such work and formulated a work-based learning module to take advantage of this naturally occurring opportunity. Initial appraisals were promising, although more systematic longer-term evaluation, which the authors identified as important, did not emerge from our literature search.

It is interesting to compare possible effects of engaging in paid work, against provision of raw financial support. In the US a randomised controlled trial involving over 2,000 community college students, which provided financial aid linked with academic performance, showed no impact on employment rate or earnings by the end of the evaluation (Mayer *et al.* 2015a). This differs from Yang's (2011) findings among HE students in China. There, large-scale survey data positively associated receipt of state financial aid with higher levels of graduate employment, although details of explanatory mechanisms are not discussed. One could postulate that it is the experiences of work itself that benefit subsequent employment (e.g. through the Federal Work-Study programme), rather than monetary support. Finally, a novel study considered if the nature of on-campus work impacted on subsequent employment choices. Studying African-Americans who entered student governance roles, Laosebikan-Buggs (2009) observed positive effects on general careers skills (e.g. leadership, decision making, organisation) but no evidence that they felt more

encouraged to pursue leadership careers. Career choice remained principally driven by subject major.

In an insightful study from the UK, Shaw (2012) identified benefits of vocational work experience accrued before entry to an undergraduate degree programme, in terms of attainment and progression. Indeed, the author was led to the important conclusion that “work experience, either before, during or within the degree programme, is a critical factor” (Shaw 2012, p. 167).

6.5 Limitations and gaps in the literature

A central observation regarding progression literature relates to empirical methodology. Towards the goal of forming a coherent evidence base there have, among the quantitative studies, been efforts to use consistent instruments to measure the impact of diverse progression-related initiatives (e.g. frequent use of the Career Decision Self-Efficacy Scale; Cheung and Arnold 2014; Farris 2012; Grier-Reed *et al.* 2012; Grier-Reed and Skaar 2010; Rettew 2012; Tirpak 2013). Nonetheless, the literature contains only occasional efforts to present data from different types of intervention in a comparative fashion (e.g. Boettcher 2009; Ishengoma and Vaaland 2016). As explained by Rowell *et al.* (2014, p. 166):

Although research examining the effectiveness of entire career and life planning courses is available, few researchers have examined the effectiveness of specific components of those courses. (Rowell *et al.* 2014, p. 166)

This issue could be addressed in individual studies by using multi-arm designs. Alternatively, data from existing literature could be converted to generic effects sizes and combined in a synthesis or meta-analysis. Either way, in the absence of comparative data it is hard to rank different types of initiative in order of their effectiveness.

On a further methodological note, measures such as Career Decision Self-Efficacy are useful but they do not necessarily translate into changes in behaviour, such as committing to a specific career target (Cheung and Arnold 2014; Grier-Reed and Skaar 2010). Moreover, with a few exceptions (e.g. Roberts *et al.* 2010; Wilton 2012), the quantitative and qualitative studies that have followed individuals following graduation do not provide specific information on eventual career outcomes (i.e. job type), to help interpret the efficacy of the progression support they received in HE (Avramenko 2012; Oswald *et al.* 2015; Scott-Clayton and Minaya 2014; Yaffe 2014). In a UK context, there have been robust efforts to use data from the DHLE survey, collected six months post-graduation, to trace links back to learning experiences of students while at university (e.g. Mason 2009; Taylor and Hooley 2014); as well as smaller-scale follow-up studies using qualitative methods (e.g. Shaw 2012). Nonetheless, tracking of graduates’ actual careers outcomes over the medium or long-term remains rare (e.g. Wilton 2012). Despite the clear practical

challenges in long-term evaluation, more research is needed that moves beyond the immediate satisfaction ratings collected by many providers of progression support (Osborn and Dames 2013). Dey and Cruzvergara state the importance of collecting, “first-destination and career outcomes data [as well as] metrics on reputation, referral, and engagement of key stakeholders” (2014, p. 12). In a UK context, the centrality of the DHLE survey, with its relatively short post-graduation scope of six months, appears incapable of fully addressing these needs.

In terms of the representation of academic disciplines within the literature, Arts and Humanities subjects appear under-researched, relative to STEM and business-related areas. Exceptions include schemes focused on entrepreneurship (Woodier-Harris 2010) and a cross-cutting career orientation course encompassing disciplines such as Education and English, which yielded effects on participants’ confidence and awareness around careers (Freeman 2012). Further research into progression for Arts and Humanities students would be welcome. There is also – with notable exceptions (e.g. Greenbank 2011) – limited literature from the UK in which the socio-cultural context of progression-focused activities has been explored. Studies that report generic improvements in relevant measures across the whole cohort of participants are welcome (e.g. Baker and Henson 2010) but they do not disclose any differential efficacy among key student groups (see Appendix 2 for paucity of group-specific evidence regarding some of the four outcomes). Such information would appear important from the perspective of widening participation. Studies that focused expressly on progression support for disabled students (Oswald *et al.* 2015; Petcu *et al.* 2015; Roessler *et al.* 2009) and ethnic minority students (Byars-Winston *et al.* 2011; Laosebikan-Buggs 2009; White 2009) have often originated from outside the UK (e.g. the US). Authors from other territories have also considered themes of social justice (Australia: Doyle 2011), altruism within careers choices (Taiwan: Cheng *et al.* 2015), and the reciprocal benefits to employers from supporting placement opportunities (Tanzania: Ishengoma and Vaaland 2016). There are clearly opportunities to examine progression beyond individualistic student outcomes. Finally, an area which is likely to increase in relevance to the HE sector but which presently appears little researched is the efficacy of international work placements.

7. Recommendations as to what works

The sources that were reviewed provide details of a diverse range of initiatives targeting one or more of the student outcomes. In addition, there is likely to be substantial pertinent literature, which was not identified by the specific search strategy used. Distilling a sizeable and varied evidence base into core recommendations is challenging. The presiding principle has been to establish a recommendation where there appears to be a ‘critical mass’ of relevant evidence. Where specific initiatives or approaches are not included this does not infer that they lack rigour, interest or promise; rather, additional confirmatory research would be welcomed in these domains.

The recommendations below have been organised into headings, relating to different stakeholders. Optimising student outcomes is, however, a complex goal. As such, particular recommendations that are here assigned to one set of stakeholders may, in practice, be the shared responsibility of various parties, including students themselves.

Frontline educators might:

- > explore how best to integrate emerging analytics platforms with the role of personal tutoring. Learning analytics is emblematic of the new holistic approaches to student retention and is likely to have profound implications for personal tutoring. Tutors are likely to require further training and support around these applications to recognise when difficulties arise with their students, which endanger their attainment and/or retention;
- > through curriculum design; ensure that there are early opportunities for assessment and feedback, which establish a culture of academic achievement and 'success'. This might enhance retention statistics. In parallel, dedicated academic 'success' programmes, which may sit outside the formal curriculum, could be of benefit to certain groups of students; examples from the US provide helpful points of reference (see McGrath and Burd 2012; Barraza 2012; Malik 2011; Smith 2010);
- > encourage more student engagement with digital learning environments and social media applications; broadly speaking, evidence indicates potential benefits in terms of raising attainment levels;
- > embed within courses professional experiences (e.g. work placements) and applied assignments, which enhance students' skills and preparedness for progression into employment and/or further study.

Higher education institutions might:

- > consider students' background characteristics (e.g. socio-economic status) to provide adjusted admissions criteria. Institutions should be mindful that with finite availability of places there may be 'losers' from such recruitment practices (e.g. applicants from more privileged backgrounds), and that crude efforts to manipulate admissions criteria may be less effective than nuanced approaches in addressing patterns of access to HE (see Pastine and Pastine 2012);
- > adopt a strategic focus to improve student engagement. Interventions must consider how academic achievement can be enhanced in the first year, as attainment and retention outcomes are considered to be more favourable for those with higher academic achievement in the first year (Clery and Topper 2010);
- > recognise that holistic programmes, which entail a raft of interventions, have the best evidence of impact on *retention* (e.g. CUNY's Accelerated Study in Associated Programs; Scrivener *et al.* 2015). Certain interventions are likely to be effective in addressing retention rates at different key 'moments' in a student's life-cycle;
- > maintain investment in counselling services, as access to these appears important in supporting students to make a successful transition into higher education. Peer

counselling and peer mentoring programmes are also worthy of further investigation;

- maintain on-campus initiatives focused on progression. There is a role here for institutional careers services, which appear effective in supporting students with specific tasks (e.g. job searching; Carroll and Tani 2015);
- devise a strategy for systemic change to address issues of access, retention, attainment, and progression that incorporates a flexible vision, senior leadership, clear communication, incentives, and professional development (see Grossman *et al.* 2015 for further details);
- commit to gathering large scale institutional and learning analytics (see Chs. 4 and 5), with the data used to inform interventions that are evidence-based, accountable, value-for-money, and targeted to the access, retention, attainment, and progression of disadvantaged students;
- adopt a joined-up 'pipeline' or student life-cycle approach, which seeks out the intricate and multi-faceted connections between the *outcomes of access, retention, attainment, and progression*, which can be jointly impacted by the same individual intervention. More data is required regarding students' journeys and where the key points of challenge lie.

Higher education policy makers might:

- explore models in which students' progression through their degree and acquisition of credits may be hastened, so as to enhance retention. Initiatives such as summer schools may be helpful here in maintaining study momentum;
- support programmes that raise interest, aspiration and readiness for post-secondary study. Broadly speaking, evidence suggests associated benefits in terms of access and retention. In addition to those that occur shortly before entry to higher education, evidence – much of it from the US – shows the efficacy of schemes that begin in secondary and even primary-aged children. In a UK context consideration might be given to lowering the age at which interventions begin. Although access-focused UK initiatives, such as Aimhigher, have allowed for creativity in how they are run at local level, more tightly specified interventions may address the documented challenges in evaluating diverse initiatives;
- trial, in a UK context, forms of financial and/or non-financial support, where eligibility is in part contingent upon student engagement (e.g. with current secondary studies or dedicated preparatory activities).

Higher education researchers might:

- closely monitor and investigate the costs and financial support surrounding HE participation, to augment our incomplete understanding of their impact *on access and retention*. This will be challenging in a highly complex environment, where institutions currently offer individualistic support packages, and the forthcoming Teaching Excellence Framework (BIS 2016) heralds differential institutional fees;
- deepen understanding of the social and emotional landscape of students, which is important to add nuance and depth to interventions targeting the four outcomes. The majority of the studies included here have been quantitative or

mixed methods approaches, but qualitative studies have a valuable role to play in fleshing out the lived experiences of students in higher education, particularly in terms of motivation and engagement. The small but growing literature in this sub-domain makes essential reading (see Ch. 4).

- > extend progression research beyond immediate and short term evaluations of students' confidence and preparedness for employment/further study, and track their actual trajectories over the medium and long-term;
- > recognise the value of holistic programmes that comprise multiple interventions, while embracing the challenge to tease out respective effects of individual components, which could help optimise future intervention design. While this review took an applied perspective, any research that helps develop compelling theory regarding the four outcomes is welcome;
- > ensure that intervention projects embed research and evaluation from the start. Retrospective, post-facto evaluations have their place but hold less weight than those studies that utilise a more experimental design. Moreover, our own experiences of conducting the review are informative for others interested in summarising evidence. We may have missed examples of successful interventions, simply by virtue of titling that was not picked up by our search strategy. We would emphasise the importance of clear titles and keywords, as well as straightforward abstracts and accessible statistical discussions, given that those who may seek to operationalise initiatives within HE settings may not be research trained;
- > employ standardised evaluation methods (e.g. questionnaire instruments) when performing primary research, so as to increase the feasibility of meta-analyses. These would be welcomed in areas such as pedagogy, curriculum, extra-curricular activities, student support, and counselling.

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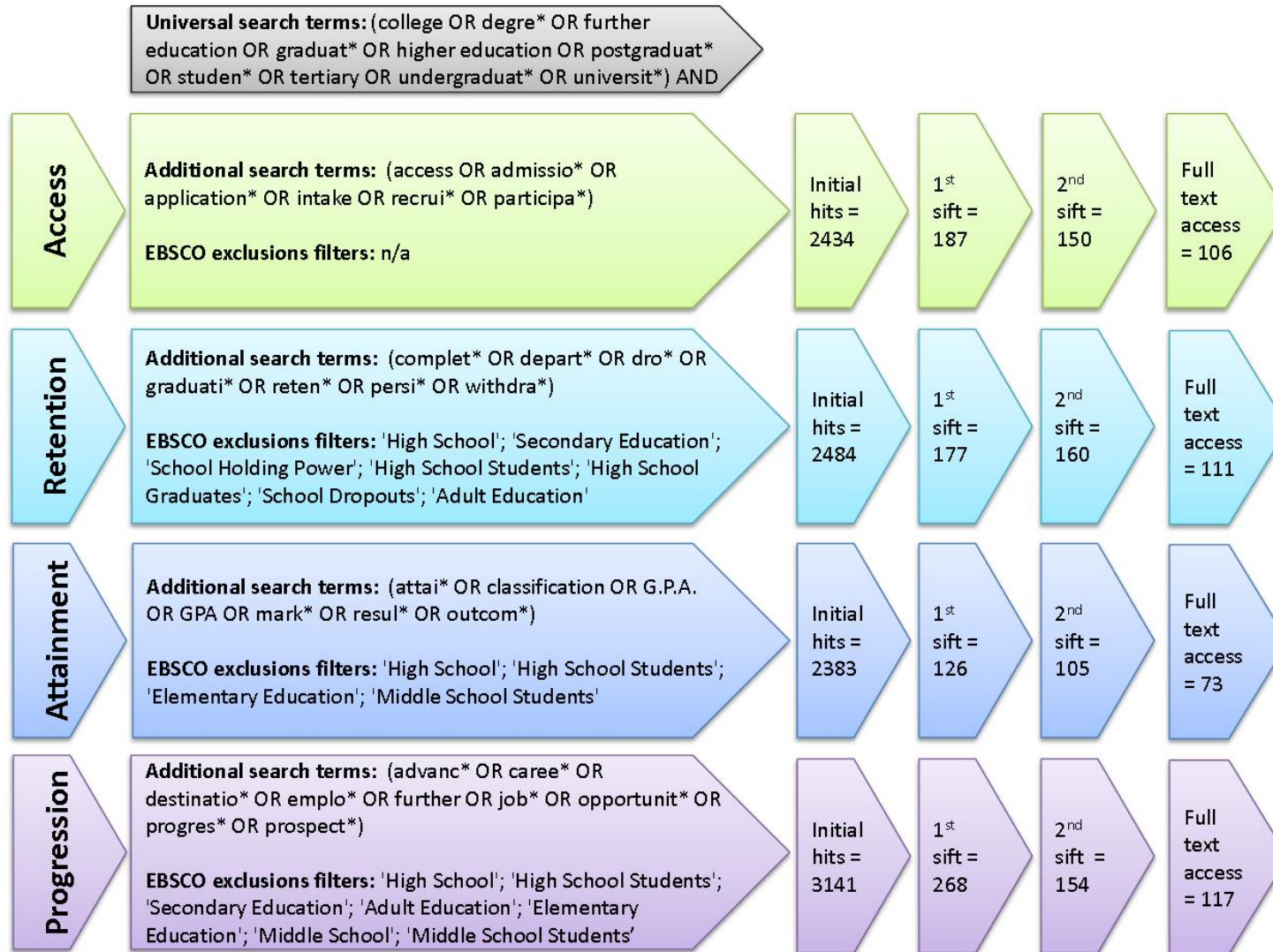
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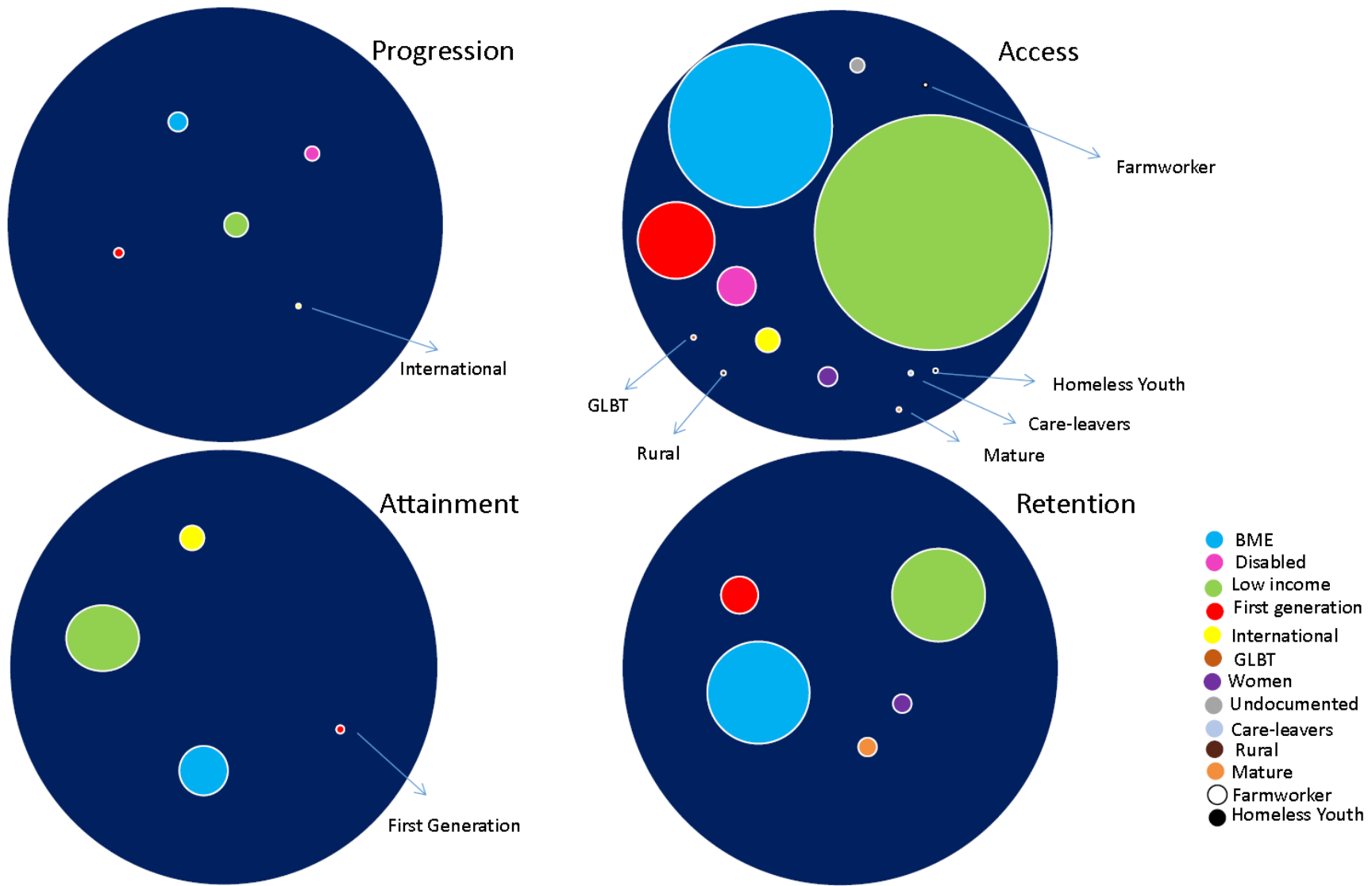
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Appendices

Appendix 1: Search methodology and results



Appendix 2: Proportion of sources that present effects for specific population groups (calculated from a sub-sample of retrieved sources)



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