



UK Physical Sciences Centre - Toolkit

Student Retention and Widening Participation

Background

This is an update to two documents on student recruitment and widening participation published by the Centre in 2002 and follows a similar format. References are given to relevant websites, appropriate downloadable documents and collections of apposite links. There are a number of pertinent publications on the websites of the Physical Sciences Centre and other Higher Education Academy Subject Centres.

In 2002 the principal emphasis centred on the issue of recruitment at a time of waning popularity in the physical sciences and the closure of many science departments. As a result of the attention given to this issue there were a number of initiatives aimed at improving the situation and the scene has to a certain extent since improved. The latest application figures are^{1,2}:

	Chemistry	Physics	Forensic & Archaeological Science	Total (all subjects)	% due to chemistry	% due to physics
2000	3209	3022	Not collected	442028	0.73	0.68
2001	3097	3103	Not collected	453833	0.68	0.68
2002	2860	3214	822	461365	0.62	0.70
2003	2713	3286	1151	476467	0.57	0.69
2004	2892	2986	1378	486028	0.60	0.61
2005	3174	3297	1522	522155	0.61	0.63
2006	3222	3333	1597	506304	0.64	0.66
2007	3589	3700	1514	534495	0.67	0.69
2008	3871	3651	1591	583657	0.66	0.63

What is a TOOLKIT?

A resource which brings together and provides links to:

- reports
 - information
 - resources
 - downloads
- for a particular topic.

There should be no cause for complacency however as the proportion of students opting for chemistry and physics has not changed markedly and subject popularity tends to behave cyclically. Nevertheless the focus of attention has moved towards retention and attracting students from low participation cohorts.

Retaining students is now at the heart of the widening participation agenda. To meet government targets institutions will need to continue to build on the successful recruitment of under-represented groups. However this means that universities are now attracting students with an increasingly diverse range of skills and experiences, from a variety of different entry routes.



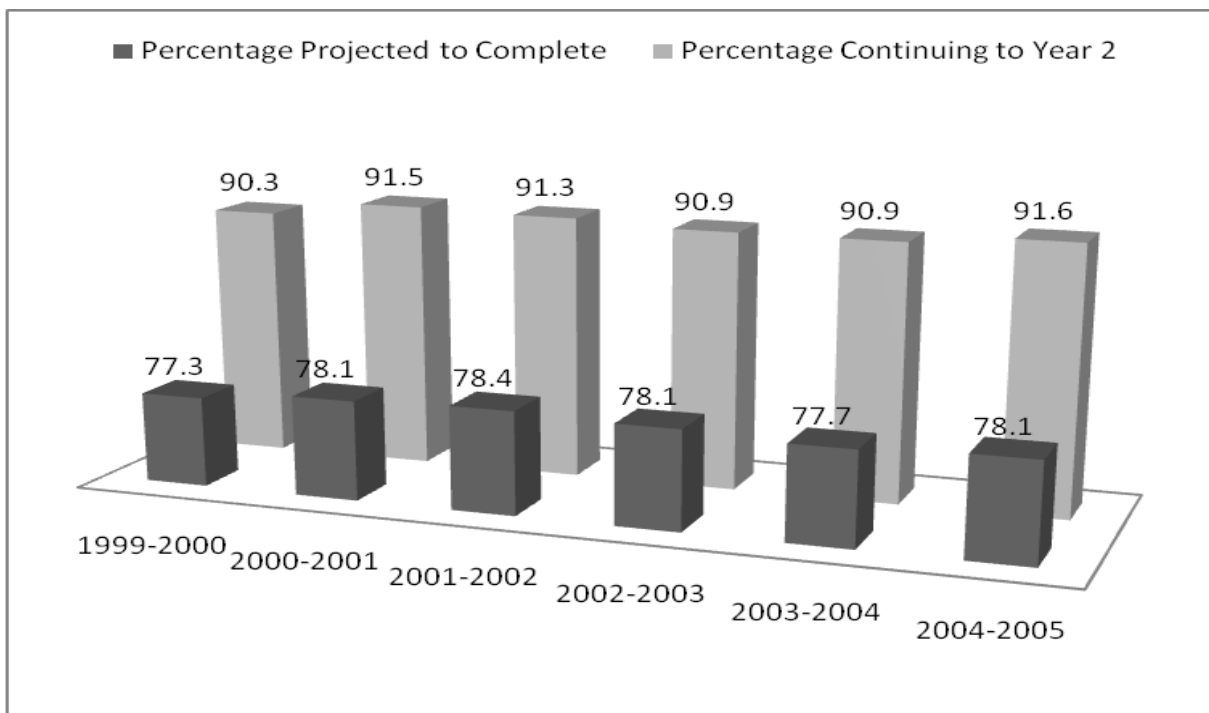
Student Retention Rates

Drop out rates in higher education have changed very little in recent years. The House of Commons Committee of Public Accounts, reporting in 2008 stated³:

Around 28,000 full-time and 87,000 part-time students who started first-degree courses in 2004–05 were no longer in higher education a year later. Among the full-time students, 91.6% entered a second year of study, and 78.1% were expected to complete. There has been little improvement in retention since 2001–02, though participation in higher education has increased from around 40% to nearly 43% of 18–30 year olds.

The yearly figures look like this:

HEFCE have made retention a prime target as part of ‘Enhancing excellence in learning and teaching’ in their strategic plan, which is available for download⁴.



There are many good reasons for institutions to address the problem in addition to directives of this kind. For example, in a report on the ‘Fiscal Benefits of Student Retention and First-Year Retention Initiatives’, the financial benefit to the institution is emphasised⁵:

Student recruitment efforts require substantial institutional expenditures (e.g. hiring of staff, travel funding, and marketing costs). In contrast, retention initiatives designed to manage student enrolment are estimated to be 3-5 times more cost-effective than recruitment efforts. A student who is retained at an institution for four years will generate the same income as four new students who leave after one year.

Reasons for Non-Continuation

Although the reasons behind student 'drop-out' are multi-faceted and complex, the most common reasons for dropping out of a university are usually thought to be:



Home sickness/wrong subject

There is little that can be done to respond to this problem except for ensuring that pastoral care is available.

Financial

The second reason is very common. The impact of student fees and the reduction in the availability of student grants has taken effect. Most students have to supplement their incomes but physics students undertake far less outside work than do those in chemistry. Obviously debts deter students from continuing their education and some are forced to withdraw. In other situations, those who are attending university and working part time at the same time are torn between paid and academic work often resulting in poor performance and eventual drop out due to assessment failure.

Bored with the course

This reason for withdrawal can be responded to by teachers. In particular, the introduction of innovative teaching methods (for example making use of new technology, or student centred learning) may create a more committed student body.

Failing assessments

Evidence shows that this is the most significant reason for student losses during their first year at university. Students may fail for a variety of different reasons:

- poor quality teaching
- lack of attendance
- lack of ability

Institutions have a responsibility to their students to provide a high standard of education which includes quality teaching. This then impacts on attendance and pass rates.



Resources for Improving Retention

Teachers should be aware of the existing and upcoming curriculum developments^{6,7}.

The Undergraduate Ambassadors' Scheme (UAS)⁸ was launched in 2002 as a way of encouraging more pupils to take up STEM subjects in schools and more graduates to teach these subjects. It aims to:

- Provide key transferable skills to undergraduates which will be invaluable after graduation
- Provide teaching experience that encourages undergraduates to consider a career in teaching
- Supply role models for pupils
- Give support to teachers
- Encourage a new generation of scientists, engineers and mathematicians

The problems accompanying the transition from school to university have been addressed in a report to the Royal Society of Chemistry in 2000¹¹ and an excellent session at the Science Learning and Teaching Conference in 2007¹⁰.

The HEA Centre for Psychology has produced a comprehensive report containing links to many useful resources¹¹. This document covers initiatives from individual institutions, funded research projects, conference events, publications from Academy subject centres and official reports. This is probably the best collection of references on the topic.

Details of the most recent 'Annual Student Retention and Progression Conference' can be found here¹².

There are a number of relevant publications on the Physical Sciences Centre website which will be found under the 'Resources' heading. Alternatively, these can be located by searching from the home page.

Widening Participation

A Government report in 2009¹³ stated that the performance in this field across the higher education sector is variable. Overall, there is an improving trend in the participation of students coming from state schools, low participation neighbourhoods and lower socio-economic backgrounds. Some universities, however, perform significantly better or worse than expected and this varies by university type. The Russell Group of universities in particular generally perform poorly. Accountability for performance remains weak because the Funding Council did not require universities to provide information on widening participation activities and expenditure. This should improve with the planned reintroduction of the requirement for universities to report on their widening participation strategies and activities. To be more effective, universities need to target schools in disadvantaged areas to reach those most in need. The figures for recent years for pupils *about whom there are data available* are:



	From state schools or colleges	From NS-SEC classes 4 to 7	From low participation neighbourhoods
	Percent of total student population	Percent of total	Percent of total
2002-03	87.2	28.4	13.3
2003-04	86.8	28.6	13.9
2004-05	86.7	28.2	13.7
2005-06	87.4	29.3	14.0
2006-07	87.8	29.8	9.0

HEFCE has recently¹⁴ responded to these Government directives,

Widening access and improving participation in higher education are a crucial part of our mission and form one of our strategic aims. Our aim is to promote and provide the opportunity of successful participation in higher education to everyone who can benefit from it. This is vital for social justice and economic competitiveness.

Widening participation addresses the large discrepancies in the take-up of higher education opportunities between different social groups.

Under-representation is closely connected with broader issues of equity and social inclusion, so we are concerned with ensuring equality of opportunity for disabled students, mature students, women and men, and all ethnic groups.

We work with higher education institutions and other organisations to raise aspirations and educational attainment among people from under-represented communities to prepare them for higher education, ensure success on their programme of study, improve their employment prospects and open possibilities for postgraduate study, and give them opportunities to return to learning throughout their lives.



The Office for Fair Access (OFFA) was created under the Higher Education Act 2004 to work with institutions to promote and safeguard fair access to higher education following the introduction of variable fees in 2006¹⁵. This is achieved through the approval and monitoring of institutions' access agreements, which set out the fees that an institution has chosen to charge and the measures it is taking to ensure fair access – primarily the provision of bursaries and, in some cases, additional outreach work.

Resources

Aimhigher

Aimhigher is a national programme which aims to widen participation in higher education by raising the aspirations and developing the abilities of young people from under-represented communities. Aimhigher partnerships build cross-sector relationships which break down the barriers which institutions and systems can unwittingly create for learners.

Funded activities include summer schools to give school pupils a taste of university life, taster days, master-classes, visits to HE providers and one-to-one mentoring programmes.

Ministers announced in 2007 that Aimhigher is to be funded until 2011. HEFCE has published guidance for Aimhigher partnerships¹⁶ which sets out the objectives, scope and structure of the 2008-11 programme.

Action on Access

Action on Access¹⁷ is the national co-ordination team for widening participation in higher education, funded by the HEFCE and Northern Ireland's Department for Employment and Learning. The team work with Universities, Colleges and Partnerships, including Aimhigher, providing advice, information and support to their widening participation activities, strategies and plans.

Action on Access and 14-19 Diplomas¹⁸

Higher education has a vital role in the success of the reform of 14-19 education. The reforms were set out in the DfES White Paper 14-19 Education and Skills published in February 2005, followed by the 14-19 Implementation Plan. Their purpose is to create opportunities for all young people to continue learning until at least the age of 18 and to give them the knowledge and skills for further learning and employment. There is a major weakness in the 14-19 phase of education due to low participation which has a clear implication for the numbers of young people with the qualifications and aspiration to progress to HE.

Information on the reform of qualifications and curriculum is available from the 14-19 Gateway¹⁹. At local level partnerships between local authorities and Learning and Skills Councils, schools, colleges, training providers and other bodies, will deliver the diplomas. The first five diplomas will be delivered in local authority areas that successfully got through the 'gateway' process.



Targeting Outreach Activities²⁰

HEFCE has produced a document providing guidance on targeting outreach activities at young people from communities under-represented in higher education. It will be useful to all those with an interest in widening participation in HE through raising the aspirations and achievements of young people from disadvantaged backgrounds. The report is directed at:

- Senior managers in schools, further education colleges and providers of HE in higher and further education institutions
- Senior staff in local authorities
- Widening participation practitioners
- Aimhigher area steering groups and regional forums
- Aimhigher area managers and co-ordinators in local authorities, schools or colleges
- Teachers, college lecturers and other stakeholders with an interest in helping learners to achieve their full potential.

References

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Publication Details

This document is just one of a series of Toolkits from the UK Physical Sciences Centre all available to download from the website (see right). The Centre also produces other publications and resources in support of teaching and learning in higher education. This includes a newsletter and journal. To have these sent to you in hard copy format upon publication, visit our website and join the Centre mailing list.

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