



House of Commons
Science and Technology
Committee

**Strategic Science Provision
in English Universities: A
Follow-up: Government
Response to the
Committee's Second
Report of Session 2005–06**

Fourth Special Report of Session 2005–06

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The Science and Technology Committee

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Committee staff

The current staff of the Committee are: Chris Shaw (Clerk); Celia Blacklock (Second Clerk); Dr Hayaatun Sillem (Committee Specialist); Dr Anne Hicks (Committee Specialist); Ana Ferreira (Committee Assistant); Robert Long (Senior Office Clerk); and Christine McGrane (Committee Secretary).

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Fourth Special Report

On 4 May 2006 the Science and Technology Committee published its Second Report of Session 2005–06, *Strategic Science Provision in English Universities: A Follow-up*, [HC 1011]. On 11 July 2006 the Committee received a memorandum from the Government which contained a response to the Report. The memorandum is published without comment as an appendix to this Report.

Government response

This is a joint response on behalf of the Department for Education and Skills and the Higher Education Funding Council for England (HEFCE).

The division of responsibilities is as follows: Ministers are responsible for setting the overall policy framework. HEFCE's role is to provide advice to the Secretary of State and, acting within the policy framework, to develop and implement the policies and measures which it judges are appropriate in particular circumstances.

Introduction

Before we deal with the Committee's specific recommendations the Government would like to remind the Committee of its policy on strategic and vulnerable subjects which was set out by the then Secretary of State in her letter of 21st October to HEFCE, a copy of which is at Annex A. [not published, <http://www.dfes.gov.uk/pns/pnattach/20050128/1.html>]

The Government's policy on the supply side is that individual institutions should be free to decide for themselves which departments they open, close, expand or re-organise as each institution plays to its relative strengths, those of competing institutions, and student demand.

This is subject to two key qualifications. The first is that the Government places great importance on individual institutions working in partnership with others to achieve effective provision across the sector as a whole. We want HEFCE and institutions to have early conversations where strategic and vulnerable subjects are at risk, which may enable the transfer of provision in a way which minimises any disruption for students and preferably improves their overall learning experience. In providing advice to the Secretary of State last year on how to secure vulnerable strategically important subjects, HEFCE included a number of "good practice" case studies. Similarly, if Sussex had decided to close its chemistry department, HEFCE would have worked effectively with Sussex and other institutions to maintain provision at the national and regional levels.

The second is that HEFCE should keep a watching brief on the potential national consequences of individual decisions and whether current provision is out of step with the national need, and advise the Secretary of State on what might be done. This does not mean that either the Department or the Council should plan or micro-manage individual departmental reorganisations or closures. Rather it means that the Council should monitor

what is happening at the national level as the starting point for its analysis and advice. In looking at the bigger picture here, the question is what combination of demand and supply side measures could best secure the future of vulnerable strategic subjects, including some science subjects. Progress in this area needs to be measured at the national level, rather than at the level of any particular institution.

Thirdly, the Government disagrees with the Committee's suggestion that the individual case of the chemistry department at Sussex indicates a failure of policy. It would not be a sensible objective to preserve every chemistry department in the UK HE sector, or every department in a STEM discipline, and we have never set such an objective. On the contrary, the Government has said that institutions should play to their different strengths. The Government's policy should be judged in terms of overall levels of provision. We are not complacent, but the recent data is encouraging with an increase of over 10% in 2005 in the number of students accepted through UCAS on to chemistry and indeed other STEM courses.

The Government's policy can be summarised thus: individual institutions should be free to rationalise provision in strategic subjects but in return we expect early and close partnership working with HEFCE to maintain capacity elsewhere. This is starting to show signs of delivering the overall objectives which the Government and the Committee share. That said, the Government will keep its effectiveness under review.

Our remaining comments on the Committee's detailed recommendations need to be seen in the light of this introduction and the policy set out in the Secretary of State's letter at Annex A. [not published, <http://www.dfes.gov.uk/pns/pnattach/20050128/1.html>]

Recommendations and comments

Student demand

1. The declining popularity of chemistry at undergraduate level is without doubt a national concern. The department of chemistry at the University of Sussex should be applauded for countering this trend and securing an increase in the numbers of students applying to study chemistry. It is disappointing that the University has taken such a negative view of the sustainability of this achievement, rather than seeking to build on this success. (Paragraph 10)

The Government agrees that the popularity among undergraduates of STEM subjects, including chemistry, is important. Until recently, there has been a reduction in the number of chemistry students nationally. However, applications and acceptances through UCAS to chemistry courses rose by over 12% last year compared with the national average increase of 7%. We are not complacent but it is encouraging that the national demand for and supply of chemistry courses is improving with student numbers rising faster than the national average.

Financial considerations

2. The University's efforts to downplay the part played by financial considerations in the decision to refocus chemistry are at odds with the importance it has attached to the

expected income of the department in the next RAE. Although the decision may ultimately be strategic, it is one that is clearly rooted in financial concerns. The University need not have sought to deny this reality. (Paragraph 11)

These are matters for the University of Sussex and it would be inappropriate for the Government to comment on them.

3. The fact remains that Vice-Chancellors are fully entitled to use income from one department to subsidise another—a principle that continues to play a role in the demise of STEM departments. (Paragraph 12)

The Government disagrees with the conclusions drawn in this observation.

The ability of Higher Education Institution's (HEIs) to use income generated by one department to subsidise another is an inevitable consequence of block grant principles. A system that tied teaching grant to individual departments would be unwieldy, inflexible and highly bureaucratic.

There is no evidence that the block grant approach has played a role in the demise of STEM departments. On the contrary, we believe that this entitlement provides a measure of protection for vulnerable departments. Removing this entitlement could prevent, for example, surpluses in popular subjects such as business studies from being deployed strategically to support vulnerable departments and would remove an important part of institutional autonomy.

HEFCE's block grant principle allows institutions the flexibility to spend according to their own priorities but within HEFCE's broad guidelines. Indeed, this flexibility actually allows Vice-Chancellors to use income to subsidise and sustain STEM departments in the face of a temporary downturn in recruitment. It also allows HEIs the flexibility to develop disciplines in innovative ways that are a hallmark of a dynamic and responsive HE system.

4. Financial management has played a role in the declining fortunes of chemistry at Sussex—historical levels of investment in the department will inevitably have impacted on its attractiveness to both staff and students. The small size of the department (in terms of both faculty and students) is now singled out as a significant factor in determining its future. However, responsibility for the shrinkage of the department rests squarely with the Vice-Chancellor, who has made no attempt to replace key staff. (Paragraph 13)

These are matters for the University of Sussex and it would be inappropriate for the Government to comment on them.

5. Whilst the Government's decision to conduct a fundamental review of the RAE is welcome, it is essential that the review involves thorough and detailed consideration of the potential implications of any replacement system, including any unintended effects on the sustainability of STEM departments. (Paragraph 14)

The Working Group set up by the Government to produce proposals on a metrics-based system recognised in its discussions that all assessment systems may have unintended effects and that it is important to identify, and if necessary, mitigate these. The proposals produced take account of issues such as those raised by Professor Smith, and, in developing

the detail of a new system we will also take into account issues identified in the consultation launched on 13th June.

6. We urge the Government to be proactive in evaluating the impacts of the introduction of full economic costing to ensure that emerging problems are identified at an early stage. (Paragraph 14)

We are monitoring the move towards full economic costing and identifying any areas likely to impact on universities' financial sustainability.

Chemical biology

7. Success in interdisciplinary subjects relies on foundations laid by strong core disciplines. The idea that chemistry can be replaced with a stand-alone chemical biology department is highly dubious and certainly unsupported by any evidence. (Paragraph 16)

These are matters for the University of Sussex and it would be inappropriate for the Government to comment on them.

8. By working together with the Sector Skills Councils, Regional Development Agencies, learned societies, employers, careers advisory services and universities, HEFCE could play a useful role, both in leveraging student interest in non-core STEM subjects to promote the uptake of core STEM subjects, and in ensuring that the employment prospects associated with different STEM degrees are communicated to prospective students. (Paragraph 16)

The Government agrees that there is a need to promote the STEM subjects more effectively to prospective students which is why the 'Science and Innovation Investment Framework 2004–2014: Next Steps' document, published in March, contained new commitments to work with employers, universities and other stakeholders to engage young people's interest in science and mathematics, increase their uptake of these subjects and encourage them to pursue STEM careers. The specific commitments included:

- Working to engage more effectively with employers and universities on how they can help support attainment and progression in science to higher education and science careers through a model of best practice.
- Expanding the Science and Engineering Ambassadors Scheme, whereby practising scientists and engineers go into schools to support teachers to engage and enthuse pupils to continue studying science. By 2007–08 the total number of ambassadors will be 18,000, an increase of 50%.
- Working with key stakeholders to develop ways to improve the awareness of young people and their parents and teachers of the benefits of studying science and the career opportunities available to those with science, engineering and mathematics degrees and other qualifications.

- Producing guidance and considering the use of financial incentives to encourage schools and universities, to share resources and expertise with other schools in the area.

Further to this, HEFCE are working with the Royal Academy of Engineering, The Royal Society of Chemistry, The Institute of Physics, The Institute of Mathematics and its Applications and the British Computer Society to increase demand for and interest in STEM subjects. All of the projects have careers information and awareness-raising as one of the foci of activity and have actively engaged with employers and Sector Skills Councils in order to effectively deliver the careers strands.

In tandem with this, HEFCE are acting to build research capacity in areas identified by the research councils in their 'health of the disciplines assessment'. £46 million is being allocated in support of 'at risk' areas within engineering, the physical sciences and integrative mammalian biology by HEFCE and the research councils.

HEFCE will explore, as part of their employer engagement strategy, with the SSCs, careers agencies and Regional Development Agencies, whether they can promote a more joined up approach to the provision of information to students.

But in addition to the Committee's recommendations on HEFCE a comprehensive dataset is already available, to inform student choice and hence lubricate the market, at <http://www.tqi.ac.uk/>. The Teaching Quality Information website includes:

- Results of the annual National Student Survey. In 2005, in the first such survey, students near the end of their studies in England, Wales and Northern Ireland were asked their views on the quality of the education they had received. Some 170,000 students responded, comprising over 60% of the survey sample. The results are available for each subject taught by each institution. The survey included full and part-time students studying for a wide range of undergraduate courses.
- The kind of employment or further study students go on to following their initial programme of study. This includes the numbers of students employed in graduate and non-graduate jobs and their most common job types.
- Information about the quality and standards of UK Higher Education from the Quality Assurance Agency for Higher Education.

But in addition to the Committee's recommendations on HEFCE, the Department will work with UCAS, OFFA and other key players in the higher education sector to consider new ways of providing information, including information on employment and future earning prospects, to potential applicants.

Consultation and communication

9. Although the University's desire to ensure that anyone affected by the proposed changes was informed directly is understandable, the decision to make public proposals that had not even been approved by the Senate made it look as though the changes in chemistry provision were inevitable. Moreover, there was a high risk that this could

become a self-fulfilling prophesy, by catalysing the departure of staff in the department and putting off prospective students. (Paragraph 18)

These are matters for the University of Sussex and it would be inappropriate for the Government to comment on them.

10. The fact that the Senate demanded a re-evaluation of the options for changes to the School of Life Sciences must be taken as an admission that the proposals presented to them had not been properly thought through, and as a reflection of the lack of consultation undertaken during their development. Indeed, we find it extraordinary that the Head of the department concerned was not consulted on the proposals at the outset and no less extraordinary that the proposals could be so criticised by the Dean of Life Sciences, a principal contributor. In our view, the process followed by the University was seriously flawed. (Paragraph 20)

These are matters for the University of Sussex and it would be inappropriate for the Government to comment on them.

Future of department

11. Ultimately, it is up to the University to decide the fate of its chemistry department. However, the University would be advised to consider whether its future as a serious science university would be sustainable without this department. The Vice-Chancellor and his colleagues would also be well advised to take account of the Government's announced intention to enhance STEM provision. Universities have every right to choose whether and how to invest in STEM subjects, but these individual choices in turn impact on regional and national provision. Under the Government's current approach to higher education policy, we regret that further closures of STEM departments will be inevitable. (Paragraph 23)

The Government believes that, provided they adopt the good practices we have described above, each institution should be free to decide what to start, stop, expand or reorganise. Some further closures of STEM departments may occur and some may open or expand. What matters is the overall picture for the HE system.

We are encouraged by the recent data on university acceptances for 2005 which suggests that the number of students entering STEM subjects (including Physics and Chemistry), is increasing by more than the national average, even at a time of higher than usual growth. Of course, this may not be sustained, but it is an encouraging development.

Strategically important and vulnerable subjects

12. We believe that it is both inappropriate and ineffective for HEFCE to rely on UUK to disseminate important information relating to the process of reorganisation in universities. (Paragraph 26)

We believe that the guidance from the representative bodies (Universities UK and SCOP) first issued in September 2005 was appropriate as an initial response. However, HEFCE accept that they have a clear responsibility to ensure that HEIs are aware of the processes that they should follow when making decisions about department closures in strategically

important and vulnerable subjects. Therefore, HEFCE will write to HEIs to make clear the need for early discussions with HEFCE regarding strategic change in strategically important and vulnerable subjects' provision and the importance of collaboration and partnership working with other institutions.

HEFCE's involvement in the proposed changes at Sussex

13. HEFCE seems to have done what it could in the circumstances to maintain the present regional chemistry provision in the short term, but this last minute damage limitation does not amount to regional strategic provision. (Paragraph 27)

14. It is disappointing that the University of Sussex contacted HEFCE so late in the day, but it also highlights the severe disadvantages of an arrangement where HEFCE is entirely dependent on universities alerting it to the potential closures at an appropriate stage, with no power to reprimand universities that do not do this. The softly, softly approach adopted by HEFCE has failed at its first test. We recommend that universities be required to alert HEFCE to proposed departmental closures in STEM subjects not less than 18 months before the changes are due to come into effect. (Paragraph 28)

HEFCE did receive 16 months notice from the University of Sussex about their intentions to close down single honours Chemistry from the start of 2007/08 academic year which would have allowed the time that HEFCE needed to ensure the maintenance of student numbers in Chemistry in the region.

The Government would not want, at this stage, to specify a particular time period for notice of such decisions. However, we have made it very clear that HEIs should enter into an early and effective dialogue with HEFCE so that they are able to reach a judgement on the overall impact on national and regional provision in the STEM subjects. As we have said, HEFCE will be writing to HEIs to make clear the importance of early conversations with HEFCE regarding strategic change in the provision of STEM and other strategic subjects, and the need for increased collaboration and partnership working with other HEIs.

HEFCE'S powers of intervention

15. In isolation, few departmental closures in themselves would qualify as the gross market failure that HEFCE uses to define situations meriting its intervention, even though the cumulative impact of these closures on regional and national provision may be extremely damaging. (Paragraph 29)

We agree that the overall picture is what matters. Consistently with this, HEFCE have been charged with maintaining a watching brief on the potential national consequences of individual decisions.

Alongside the horizon scanning work we have described under recommendation 17, HEFCE:

- Are working with the Open University to develop their national role; this includes providing strategic subject provision to relatively isolated pockets of student demand.

- Have allocated 5273 full time equivalent student places in the sector for STEM subjects for delivery in the period 2006 to 2008. HEFCE have also identified sets of strategic priorities for each region, and are therefore confident that the final distribution of a total of over 25,000 FTE places will address the educational, vocational and skills needs of each region.
- Have allocated £25,000 of Strategic Development Fund funding for a feasibility study of Physics provision in the South East region involving six HEIs with a view to ensuring long term sustainability.

16. The Government recognised that the market is imperfect as a means of matching graduate output to the country's need for STEM graduates. It has asked HEFCE to intervene when necessary to support its policy aims but has failed to give it the powers or political support necessary to enable it to fulfil this function effectively. (Paragraph 29)

The Committee appears to have misread or misinterpreted what the Secretary of State asked HEFCE to do. For the avoidance of doubt, the Government's remit to HEFCE was that the Council should

“continue to monitor whether there are areas where current provision seems out of step with the national need; consider whether action is needed; and if so, advise me on what might be done, and who is best placed to do it”.

Throughout its report, the Committee appears to base its recommendations on the position of a single institution without considering the wider picture. We believe that there is no convincing evidence that further supply side intervention in STEM provision beyond the current set of policies is needed, but the Government will keep the position under review. If they judged that further supply side intervention was necessary, Ministers would act taking account of advice from HEFCE. But nothing in the Committee's report has convinced the Government that such action would be justified at present.

17. HEFCE must be proactive in horizon scanning and collection of relevant data. The Government can only exercise proper strategic oversight of STEM capacity if it has comprehensive data sets, including trends in student demand, uptake and quality, and employer demand for different STEM subjects, where appropriate at institutional level as well as regional and national level. We recommend that the Government ensures that such data is maintained and published periodically. (Paragraph 30)

We agree with this recommendation so far as it relates to data at the national and regional level.

In providing advice to the Secretary of State last year, HEFCE carried out analyses of just this sort. Based on the analysis, HEFCE's advisory group was able to judge whether a strategic subject could be considered vulnerable. This data will be maintained and updated regularly, with a view to it informing HEFCE's ongoing work to support strategic subjects on the one hand, and a follow-up review, in 2008, of its policy towards strategic subjects and advice to the government on the other. HEFCE are also considering other approaches to their routine and on-going horizon scanning in order to enable HEFCE to take a more considered view on regional and national vulnerability.

In addition to the analysis described above, HEFCE have developed a number of bespoke data analyses to inform the understanding of the health of disciplines that are deemed strategically important and vulnerable. Where appropriate, the learning from this work will be made available on the strategic subjects section of HEFCE's website – <http://www.hefce.ac.uk/aboutus/sis/>. Information about HEFCE's programme of activity to support strategic subjects can also be found here.

At the institutional level, there is a different role for “horizon scanning”. As we said on recommendation 13, it is important that HEIs give early warning of intentions to reorganise or close departments involving vulnerable strategic subjects. A more proactive role for HEFCE in monitoring the performance of individual departments is less desirable, since HEFCE's interest should be in overall levels of provision.

18. It is extremely unfortunate that in an area of higher education so crucial to the nation's future industrial strength there is now an acknowledged policy failure. (Paragraph 31)

The Government entirely rejects this criticism.

As we made clear in the introduction to this response, the Government's policy on the supply side is that individual institutions should be free to decide for themselves which departments they open, close, expand or re-organise as each institution plays to its relative strengths, those of competing institutions, and student demand.

This is subject to two key qualifications. First, we want HEFCE and institutions to have early conversations where strategic and vulnerable subjects are at risk, which may enable the transfer of provision smoothly. This is already happening as HEFCE's advice makes clear. Second, HEFCE should keep a watching brief on the big picture and advise the Secretary of State on what might be done. What matters is what is happening at the national level, rather than at the level of any particular institution, and the latest data from UCAS on applications and acceptances to study strategic subjects is positive.

19. The Government is evidently committed to preserving—indeed cultivating—a market in higher education, although we note that it does not appear to have ever consulted Parliament specifically on this matter. We invite the Government to rectify this situation. In our view, there is a fundamental disconnection between the Government's desire for strategic provision of STEM subjects and its desire to maximise the autonomy of universities. As a result, the Government has no effective lever to control its strategic science policy in terms of undergraduate provision. (Paragraph 32)

HEFCE already has scope to deploy funding for Additional Student Numbers in ways which can support strategic subjects. But in the main there has been long standing consensus that Government should not intrude on the freedom of institutions to decide their subject provision, which is ultimately driven by student and employer demand in ways which reflect wider economic trends. Amendments made by Parliament during the passage of the Further and Higher Education Act 1992 protect institutional autonomy and limit the scope for Government intervention as regards support for particular subjects.

The Government believes that the autonomy of this country's institutions is a cause of their success, and this point was argued at length in the 2003 White Paper. The Government also believes that a system driven by individuals' choices, which are influenced by factors such as employer signals, is more likely to be effective and sustainable than a planned system. A planned system of HE provision would suffer from the well known defects of other central planning systems. But it is right that Government should consider the outcomes from a choice-led system and examine the case for policy intervention where this is appropriate. These interventions need not only be on the supply side. The approach we have taken on strategic subjects clearly does involve some Government steering of the system to maintain overall capacity at national level, but at this stage we see no evidence that a more interventionist approach is warranted.

Further questions from the Committee

The Committee Clerk sent a letter to the Department for Education and Skills requesting further information about a number of areas following on from the Committee's report. Our responses are set out below.

Whether the new information on costs obtained as a result of the current development of the TRAC Framework will be used to review HEFCE's recent decision not to alter the subject band weightings; and, if so, whether retrospective reallocation of funding would be considered?

HEFCE received strong support in its recent consultation (with over 90 per cent of respondents agreeing) that subject weights should not be changed in the short term until robust information from the TRAC study is available to inform a review. The first tranche of robust data we can expect from the TRAC methodology, which will give us evidence to inform a review of the price groups, will be available in 2008. Allowing time for analysis and consultation, the earliest HEFCE can use this information to inform price groups would be in its allocations for 2009/10. It should be noted that, in most cases, changes to subject weightings would not generally affect the overall level of grant provided for individual institutions. It would be inappropriate to retrospectively review allocations using different weightings, particularly when the sector has overwhelmingly endorsed the view that subject weights should not change in the interim.

What progress has been made by the four pilot schemes involving Sector Skills Councils, HEFCE and DfES in addressing issues of student demand and supply?

In working with the four SSCs who have acted as pathfinders for Sector Skills Agreements (e-skills, skillset, constructionskills and SEMTA), HEFCE offered opportunities for them to work jointly with institutions to develop proposals which would meet employers' and students' needs. In the case of e-skills and Skillset, HEFCE have offered Strategic Development Funding and Additional Student Numbers (ASNs) for the development of an e-skills IT Management for Business Degree and the establishment of screen academies. In the case of SEMTA and constructionskills, both have agreed an HE element of their SSA to support the development of HE provision which meets the needs of their industry. Examples of the type of activity being supported include SEMTA's 'higher apprenticeship' and constructionskills development of its Accelerating Change in Built Environment Education Programme which is being supported by the HE Academy.

In terms of further measures, Sector Skills Councils (SSCs) are a key stakeholder and partner within HEFCE's employer engagement strategy, which will support employer-led and employer funded provision. HEFCE's current activity includes:

- Support for SSCs to develop their relationship with the HE Academy Subject Centres to promote joint work on curriculum development. HEFCE are developing a joint guide for HE and the Skills for Business Network in working together. This is a joint project being supported by Foundation Degree Forward, DfES, SSDA and HEFCE.
- HEFCE have also initiated meetings with the 'second tranche' of SSCs to explore the issues arising from the first stages of their sector skills agreements, in advance of joint development of solutions between the HE sector and SSCs as part of the later stages of their SSAs. Events for tranche 3 are planned for autumn 2006.
- HEFCE are encouraging Lifelong Learning Networks to develop links with SSCs.

HEFCE are also keen to support SSCs to be able to engage with institutions at a strategic level. Their three regional projects, which will include support to extend Train to Gain to HE (announced by the Minister for HE at the AoC Conference in May), will also explore how a more effective link can be made between Sector Skills Agreements and SSCs, labour market information, and regional HE activity.

HEFCE have also issued a circular letter to HEIs and FECs inviting them to develop proposals to support employer engagement and co-funding with employers. They intend to write to stakeholder partners, including SSCs and other employer bodies, to alert them to the letter and encourage them to contact their HE partners if they would be interested in developing joint projects that could be eligible for HEFCE funding.

What steps are being undertaken to monitor the impact of student debt on choice of subject at undergraduate level and on progression to postgraduate study in the sciences?

The Department has convened a steering group for evaluation activity designed to inform the independent review of the student support arrangements reporting to Parliament in 2009.

What proportion of higher education students have been from overseas in each of the last five years, broken down by subject?

Taking all higher education students registered on any course at any UK HEI (excluding the Open University) involving a science subject, with known domiciles, the following table shows the proportions from overseas, broken down by subject. Due to the change in the way subject was recorded between 2000 and 2001, the 'other physical science group' before the change is too small to be comparable and so has been omitted from the table.

Proportions of higher education students from overseas

| Subject | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|------|------|------|------|------|
| Chemistry | 13% | 13% | 13% | 14% | 15% |
| Physics, astronomy | 13% | 12% | 12% | 11% | 13% |
| Other physical sciences | n/a | n/a | 11% | 12% | 14% |
| Mathematical sciences | 11% | 12% | 15% | 16% | 19% |
| Computer sciences | 13% | 15% | 18% | 21% | 23% |
| Molecular biology, biophysics, biochemistry | 14% | 16% | 16% | 18% | 20% |
| Other biological sciences | 10% | 10% | 11% | 13% | 14% |
| Electronic and electrical engineering | 27% | 29% | 33% | 37% | 41% |
| Mechanically-based engineering | 22% | 21% | 26% | 27% | 29% |
| Other engineering | 29% | 28% | 29% | 30% | 30% |

Notes:

- a. These percentages are based on headcounts of students studying a course involving a science subject.
- b. The headcounts relate to HEFCE populations used in previous analysis of STEM subjects. They do not exactly correspond to statistics published by HESA.
- c. Students taking a course in two or more science subjects will be counted more than once in these figures, i.e. a student registered on a chemistry and physics course will be included in both the chemistry numbers and the physics numbers.
- d. These include both full-time and part-time student, undergraduate and postgraduate students, registered at UK HEIs.
- e. These figures exclude students with unknown domiciles.
- f. Students registered with the OU have been excluded due to a change in the way subject of qualification aim was recorded by the OU between 2002 and 2003.

What proportion of higher education students have undertaken courses at a local university in each of the last five years, broken down by subject?

Taking all UK domiciled higher education students registered on a course at any UK HEI (excluding the Open University) involving a science subject, the following table shows the proportion studying at a local university, broken down by subject. We have taken local university to mean a higher education institution less than 30 minutes drive away from a student's home postcode. Again, because of the change in the way subjects were recorded, the 'other physical sciences group' have been omitted in 2000 and 2001.

Proportions of UK domiciled higher education students undertaking courses at a local university

| Subject | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|-------------|-------------|-------------|-------------|-------------|
| Chemistry | 20% | 20% | 22% | 24% | 23% |
| Physics, astronomy | 13% | 15% | 16% | 18% | 17% |
| Other physical sciences | n/a | n/a | 22% | 17% | 17% |
| Mathematical sciences | 21% | 23% | 23% | 23% | 22% |
| Computer sciences | 41% | 41% | 41% | 41% | 41% |
| Molecular biology, biophysics, biochemistry | 20% | 20% | 21% | 21% | 21% |
| Other biological sciences | 21% | 22% | 22% | 23% | 24% |
| Electronic and electrical engineering | 33% | 33% | 33% | 34% | 33% |
| Mechanically-based engineering | 26% | 26% | 26% | 26% | 24% |
| Other engineering | 21% | 21% | 21% | 21% | 22% |

Notes:

- a. *These percentages are based on headcounts of students studying a course involving a science subject.*
- b. *The headcounts relate to HEFCE populations used in previous analysis of STEM subjects. They do not exactly correspond to statistics published by HESA.*
- c. *Students taking a course in two or more science subjects will be counted more than once in these figures, i.e. a student registered on a chemistry and physics course will be included in both the chemistry numbers and the physics numbers.*
- d. *These figures include both full-time and part-time student, undergraduate and postgraduate students, registered at UK HEIs. ..*
- e. *Students registered with the OU have been excluded due to a change in the way subjects of qualification aim were recorded by the OU between 2002 and 2003*
- f. *The drive-time is measured between a student's home postcode and the place of study. This may be a campus some distance from the main campus of the institution or an FE college where the provision is through a franchised arrangement.*

What steps are taken to monitor the factors influencing the choices of subject and university made by young students; and what research has been commissioned on this subject?

A study "Attitudes to Debt" was published in 2003, which looked at how financial considerations impacted on students' choice of both institution and subject. The most important factor in a student's decision-making process was choice of subject. As noted in our response to Question 3 above, the Department has convened a steering group for evaluation activity designed to inform the independent review of the student support arrangements reporting to Parliament in 2009.

Reports from the Science and Technology Committee in the 2005 Parliament

Session 2005–06

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| First Report | Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage | HC 578-I |
| Second Report | Strategic Science Provision in English Universities: A Follow-up | HC 1011 |
| Third Report | Research Council Support for Knowledge Transfer | HC 995-I |
| Fourth Report | Watching the Directives: Scientific Advice on the EU Physical Agents (Electromagnetic Fields) Directive | HC 1030 |
| First Special Report | Forensic Science on Trial: Government Response to the Committee's Seventh Report of Session 2004–05 | HC 427 |
| Second Special Report | Strategic Science Provision in English Universities: Government Response to the Committee's Eighth Report of Session 2004–05 | HC 428 |
| Third Special Report | Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage: Government Response to the Committee's First Report of Session 2005–06 | HC 1036 |