

The Science Council

Memorandum of Evidence to House of Commons Select Committee Innovation Universities and Skills Inquiry - Funding for Equivalent & Lower Qualifications (ELQs)

The Science Council brings together over 30 organisations across the breadth of science and its applications. One of its key priorities is to strengthen and support science education and the development of science skills in the UK. The Science Council has consulted member bodies and found that there are widespread concerns across disciplines and professional groups with regard to the decision by HEFCE to withdraw funding for ELQs.

It is our belief that the UK needs to be able to compete in the international global economy as well as be in a position to play its part in addressing the enormous issues facing humanity in the 21st Century, such as climate change. To achieve this, the UK must raise levels of scientific and mathematical literacy throughout the population as well as increase the numbers of active scientists and mathematicians in all sectors of the economy – business, industry, public services and not-for-profit organisations. Several reports, including the 2004 Science and Innovation Strategy, Race to the Top (the recent ‘Sainsbury Review’) and the Leitch Review of Skills, have all recognised this imperative. In this context the decision by DIUS and HEFCE to reduce support for ELQs appears incomprehensible.

We are disappointed that the policy decision was been made without wide consultation and certainly came as a surprise to our sector. We believe that many of the consequences for the ambition for the UK to be a knowledge based economy are not yet apparent to Government or HEFCE although we would accept that these may be unintended consequences. The decision is likely to affect every industry and profession that needs to keep abreast of technological and scientific developments: and it will not help address the skills shortages in the UK that are apparent now across a wide range of science and technology industries. It is often in these sectors and these professional areas that ELQs are very important to the recruitment of key staff, and to their continuous development within their chosen field.

Science and technology has changed, and is changing rapidly. It is increasingly multi- and inter-disciplinary, and those entering the professions must have a broad base of scientific and technical education as well as vocational qualifications gained through their working life. The Science Council is committed to increasing science professionalism and for this reason our Chartered Scientist designation has continuous professional development as a mandatory requirement: it is our view that all practicing scientists must expect to keep up to date.

There is a lack of clarity with regard to the definition of ‘equivalent level’ with integrated master’s qualifications, a qualification that has been developed strongly within the science and mathematics communities.

The Science Council notes the intention to introduce loner-term safeguards for institutes such as the Open University and Birkbeck University of London. We note however that other institutes play a more significant role in courses in some areas of science and technology and we therefore hope that nation-wide and regional safeguards will be introduced.

The Science Council puts the case that it would be in the public interest for Government to contribute to ELQs for the following reasons:

- To encourage study in an areas of national need beyond the limited number identified as strategically vulnerable

- To enable the development of knowledge and skills in areas of new science, one that has moved on rapidly, or one in which it would be strategically important for the UK to develop
- To enable individuals to move into an area of employment and opportunity, particularly in response to changing patterns of industry and investment
- To enable women returners – those aiming to re-skill after raising a family. UKRC indicates that this is the largest group within the part-time learners studying for second degrees.
- To enable students aiming to re-skill or transfer to different jobs after a disability makes continuation in a current job impossible, and other similar disadvantaged or vulnerable communities
- To enable students in low income professions – and these might be science and technology based – who would wish to have the opportunity to retrain to gain improved career prospects and earning potential
- To facilitate and encourage increased professionalism in science and its applications but enabling those within a profession to undertake additional training or education to qualify for Chartered Status and maintain a continuing commitment to continuous professional development
- To facilitate and encourage the take up of top-up modules of learning particularly in the areas of business skills in relation to the application and development of science and technology.

Higher Education is the principle environment in which professional scientists, and those wishing to become professional scientists, will gain their additional skills. Some examples are set out below.

Institute of Physics and Engineering in Medicine

The Institute of Physics and Engineering in Medicine runs two training schemes, one for graduates in physical sciences or engineering who go on to undertake post graduate education and vocational training in medical physics or clinical engineering, and one for undergraduates, currently workplace based, who undertake H-level vocational degrees in clinical physics technology or clinical engineering technology.

Both of these programmes attract a small but significant proportion of trainees who enter with existing equivalent qualifications that do not have the right educational content to give the necessary knowledge base needed to support and underpin the associated vocational training.

Medical physics and clinical engineering trainees, whose aim is to be registered as Clinical Scientists by the Health Professions Council, often enter with four-year first degrees of MPhys, MEng, MSci and MMath, which are now regarded by the QAA as M-level degrees¹. 37% of the current Part 1 trainees in medical physics and clinical engineering have entered with such degrees and have, or are undertaking, MSc degrees in medical physics or medical

¹ **QAA Subject benchmark statements**

Academic standards – Physics, astronomy and astrophysics

1.3 In view of the wide availability and popularity of MPhys and MSci degrees in physics and their close link with the BSc degree, these programmes are included in this statement. An MPhys or MSci degree is awarded after an extended programme of integrated study, to students who have achieved learning outcomes for a Masters degree. MPhys or MSci degree programmes allow students to study physics to a greater depth than is possible on a Bachelors course and to extend the opportunities to develop their transferable skills and undertake project work. These Masters degrees are classified degrees that provide a coherent and broadly based education in physics. They are to be distinguished from MSc programmes in physics, which are self contained courses, normally involving one or two years of postgraduate study in a specialist area and which are not covered by this statement.

or bioengineering from one of the 18 MSc degrees accredited by IPEM at 13 UK universities. The extract from the QAA benchmark statement in footnote 1 distinguishes these specialist MSc programmes from the M-level first degrees, but it is not clear whether the same distinction is being made by HEFCE and DIUS when they consider the equivalence of such different M-level degrees.

Trainees in clinical physics technology and clinical engineering technology now follow a vocational training programme which is currently workplace based, but includes a part-time BSc (Hons) in Clinical Technology. Although most trainees will not enter the training with a first degree, a number of existing graduates do enter this training scheme. Three examples are known of candidates with a BSc (Hons) in Sports Science, a BSc (Hons) Human Biology and a BSc (Hons) in Biology/Life Science, respectively, who are following the BSc in Clinical Technology programme to give them the necessary underpinning knowledge in clinical technology, including (according to the training specialism) specialist subject knowledge in areas such as nuclear medicine technology, radiotherapy physics technology and medical equipment management.

British Computer Society - Computing and IT

The British Computer Society warns that there is a growing skills shortage in IT. There has been a significant fall off in the number of students taking computing courses in the UK. However, the IT sector continues to grow rapidly which means that many of those entering the field, particularly as graduates, will not have a primary education in computing science.

Employers are more willing to employ those with a qualification in a related or relevant field and to train them once in employment. They urge the Government to exempt Computer Science from this ELQ funding decision.

This is often true of new or emerging areas, professions and technologies. Opportunities develop in areas of science and technology build from the knowledge gained in qualifications gained earlier. For example, individuals may not have specialist qualifications in the field of their current employment and will need to take additional courses to gain this expertise. And, of course, if a field is relatively new or has a new professional development programme (for example clinical research), there are unlikely to be new graduates available for employment so an existing workforce will need to retrain or gain profession specific qualifications.

British Psychological Society

BPS have indicated that while supporting the exemptions already set out in the HEFCE consultation paper, they have identified that there are additional routes into clinical psychology and other NHS-related psychology/mental health training that have not been included. The BPS also identifies as a concern the confusion around the status of conversion awards in psychology in relation to these proposals. They are also concerned about the impact on part-time students and whether there is sufficient understanding of this, particularly in terms of discrimination.

Mathematics

The Committee of Mathematical Sciences has urged that mathematics sciences should have a complete exemption from the ELQ policy. But they also identify that the need to retrain and upskilling mathematical sciences is well recognised across all areas of the economy and should be a key area for life-long learning. Part-time study in the higher education sector is the most realistic way to achieve this.

Institute of Clinical Research

The majority of the professionals working for qualifications with the Institute of Clinical Research fall within the category of obtaining a qualification lower than their first qualification. For example, many Clinical Research Associates will have a PhD (in for

example in animal or human genetics) and will then undertake an MSc in clinical research. Both the student and the profession believe that a qualification in the specialist subject will enhance the quality of clinical research and trials in the UK as well as help individual career progression.

Case Studies

These anonymised case studies illustrate the issues raised above.

Woman returner

A 47 year old woman with a first degree in English, who had been out of paid employment and child-raising for nearly 20 years, took the British Psychological Society recognised degree in psychology when her marriage broke up. She lacked confidence and unclear beyond an interest in psychology as to what the future could hold for her. She began with quite low grades in her level 1 studies, but averaged 2:ii grades at level 2 increasing to 2:i in her third year.

She became active in the OU psychology student association, and through organising and attending events and meeting other students became more confident and articulate, and developed a keen interest in counselling psychology.

After graduating she took a 1 year BACP course in counselling at her local college, and then worked in a GPs surgery for a year on monitored placement before applying for and gaining a full-time post in a University counselling service.

2. After securing a BSc in Genetics and a PhD in Molecular Biology, this student's life changed when she had to move to Germany with her husband, who worked in the Royal Air Force. Thinking about their future hopes for children, she decided that a career change to teaching would fit with their plans better than a role in research, which was less suited to family life. She and her husband were in Germany for two years, during which time she studied with The Open University for a PGCE.

On their return to the UK, she took some time off to have children. Keen to illustrate her commitment to her teaching career, she took an MA in Educational Leadership and Management and a Diploma in Special Education Needs with the OU whilst having time off with her family. This meant she was able to re-enter the job market easily and now works full time as Head of Biology.

She is now taking a Chemistry degree as there is more demand for teachers in this subject. She has ambitions to move to Head of Science: having experience in both biology and chemistry means she would be much more employable.

Although her school gave a small contribution to her Masters and Chemistry studies, she has paid the bulk for her studies herself.

She said: *"If there were higher fees for these courses I would not have been able to do them. As a teacher, the return in terms of salary through career progression would not have offset the cost of the studies. It would certainly impact on my career development."*

Gaining Specialist skills

Despite having a Certificate in Education and a BEd and having taught for many years across the range of education sectors: secondary, primary and further education, the student was hampered from progressing her chosen fields of English and French by the lack of a

specialist degree, so she began to consider other options. She wanted to remain in education and use her knowledge and experience, and educational psychology seemed to be an ideal second career.

Once she had decided to train as an educational psychologist, she first had to do a psychology conversion course, a Post-Graduate Diploma in Psychology. She studied with the OU for a year then gave up work for a year to follow the course, which automatically gave her Graduate Basis for Registration.

Following this she obtained a place on the Professional Training course for Educational Psychology at University of Wales Swansea. She was one of 10 trainees on the course in Swansea (of whom 50% of us were over 35 years old). She was fortunate to gain a position immediately after the course as an educational psychologist for West Glamorgan at the age of 44. She worked generically but with specialist responsibility for children with visual impairment and also worked at the deaf/blind unit.

In 2004 she began working at a Dyslexia Unit. She is now Head of the Assessment Service which provides assessments for children, students and adults.

Post redundancy re-skilling

1. In the 1980s a woman in her late twenties, working in personnel and human resources within the banking and finance commercial sector, gained professional personnel management qualifications to HND level.

In early 1990s she moved into work in the software industry, and became interested in the radical management and business changes which took place during that period. After being made redundant she studied with the Open University to gain a British Psychological Society recognised degree in psychology in 1995, which took her on to a PhD in business psychology at a conventional university.

She now runs her own successful consultancy providing analysis of business process and management practice to companies, and senior management coaching and development. She also taught for the Open University on courses in both the psychology and business programmes, and for the Universities of Manchester and Nottingham.

2. Holding a postgraduate diploma in management, this student did not hold a first degree. He is in his 40s and four years ago found himself unemployed. He left his previous field of IT to start his own business in biotechnology, but a lack of finance led to the end of the business start-up.

He had been out of the IT sector for three years and found that – on his attempted return – most jobs required a good first degree in a relevant discipline. He started working for free for a small company and began an undergraduate degree with the OU. His study was not funded by any employer.

Three years later, he has a first class BSc (Hons) in Physical Science. He said: *“I’m now far more employable and have extra skills to show in the marketplace.”*

He adds that were his postgraduate diploma to preclude him from being funded at an institutional level (leading to higher fees being charged), he could not have afforded to study for his degree.

Career Change

Studying in the evening was the only option for this student who was 30 when she started at Birkbeck.

'It made the whole process financially viable,' said this particular student, who gained a Psychology BSc in 1986. 'I wouldn't have contemplated giving up work as a teacher to do a full-time second degree. Finding the fees was manageable, but I would have struggled to complete the degree if the fees were much higher. As it was, I was in a position to take a few weeks' unpaid leave during finals.'

Having already obtained a degree in Philosophy, the student enrolled at Birkbeck with a career change in mind, but also because of a genuine interest in the subject. Since her undergraduate course at Birkbeck, the student has qualified as a clinical psychologist and family therapist.

'Studying at Birkbeck has given me terrific opportunities. I now have a fascinating job seeing children and families, engaging in clinical research and training postgraduate psychotherapists.'

Growing areas of the economies

Studying for a first degree in electronics and mathematic and nearing completion, this student realised he had a better chance of being employed and of achieving career success in the financial sector, for which the electronics part of his first degree was not relevant.

He began a second bachelor's degree – in economics and mathematics – with the OU, partly in order to help him stand out during the recruitment process. He currently works full-time in customer services for the National Grid. While he believes his study will help him to achieve his career goals, he doubts his current employer would agree to part-funding his study.

He said: *"I plan to change my career, and the studies will in no way benefit my current employer, so there would be no advantages to them if they were to fund it."*

14th January 2008