

From the President
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24 September 2012

Professor Nigel Thrift
Chair of the Commission on the Future of Higher Education
Institute for Public Policy Research
14 Buckingham Street
London
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Dear Professor Thrift,

Re: The future of higher education in England: Call for evidence

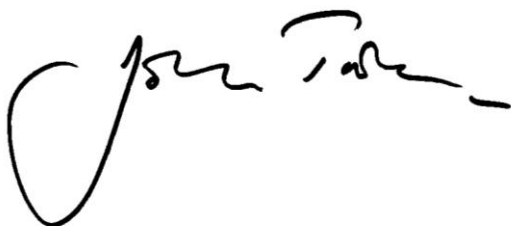
I am writing on behalf of the Academy of Medical Sciences to welcome the aims of the Commission on the Future of Higher Education to look holistically and strategically at higher education in England to build a policy agenda that addresses the critical challenges facing the sector in the long-term.

The Academy promotes advances in medical science and campaigns to ensure these are translated into healthcare benefits for society. One of the Academy's strategic goals is to develop the next generation of leading biomedical researchers by campaigning for the development, protection and promotion of careers for academics and encouraging good practice in training and development. Linking academia and industry is also a key objective that cuts across the Academy's activities and builds on our focus on research excellence across the spectrum of clinical and basic disciplines and commitment to interdisciplinary working.

The higher education system underpins the UK's success in: drawing the brightest talent from across the world; producing a first class workforce; attracting business; driving knowledge creation and innovation; and enabling us to be a leader in a competitive and inter-connected global economy. This issue is of key importance to the Academy, so we would like to highlight a number of pertinent matters for your consideration. The Academy's response focuses on biomedical training and research, although many of the issues raised are applicable to other scientific disciplines.

I would be happy to meet with you to discuss these in more depth. If you would like to arrange a meeting or call to discuss these issues further then please get in touch with me via Dr Abbi Hobbs, Policy Officer, on abbi.hobbs@acmedsci.ac.uk or 020 3176 2164.

Yours sincerely,



Should we have incentives in place that encourage more emphasis on teaching quality?

The UK has a world-leading track record in biomedical research. To maintain this track record it is important to deliver research-led teaching at undergraduate and postgraduate level, enabling the UK to develop and foster the researchers of tomorrow. The quality of research-led teaching in the UK is a significant factor in attracting overseas students. In 2010 the Academy published a report concerning the valuation and recognition of teaching.¹ It emphasised the importance of research-led teaching, highlighting that academics should be encouraged and supported to engage fully with teaching. Government has also advocated that excellence in teaching should be recognised and rewarded.

However, teaching, as part of an academic's portfolio of work, can still often be under-valued and under-recognised and this needs to be improved. Guidelines on best practice for this are integral to achieving this aim, and university biomedical science departments and medical schools should declare and enact a commitment whereby all academic staff are expected to contribute to teaching. Learned societies and professional bodies, academies, Higher Education Funding Councils and the Department for Business, Innovation and Skills should be proactive in orchestrating the spread of good practice in the management of teaching load, to ensure that research and teaching are not weakened by the disengagement of research-focused academics from teaching. Teaching should be an important component of decisions around career progression across all career grades and plans for the evaluation of teaching at institutional, departmental and individual levels should be developed and implemented.

It will be important to protect teaching in the higher education reforms to ensure that quality education continues to be delivered by those who can bestow a spectrum of skills on our students.

Do you support the 'dual support' system for allocating research funding?

The Academy sees no reason to change the balance between the two strands of the dual support system for funding research that has allowed the UK to develop world class, research-intensive universities. The business and charity support elements of higher education funding should be conserved, given increasing collaborations between academia, industry, charities and the NHS.

Is the economic role of universities best understood as a direct contribution to the economy through research commercialisation or an indirect contribution through the development of a better educated population and rigorous academic research?

HE is crucial to maintaining the UK's excellence in biomedical disciplines, which have been frequently highlighted by the Government as strategically important for rebalancing our economy. It is important to emphasise that seeking to aid economic growth through research commercialisation is not in conflict with pursuing rigorous academic research. In the case of biomedical research, the pursuit of higher learning and research endeavour provides both a direct return on investment, for example through sustaining the pharmaceutical and biotechnology industries, and an indirect one, in terms of societal advancement, furthering knowledge and translating this knowledge into improvements in human health.

What institutional and policy reforms would facilitate better university–industry collaboration?

Recognising the importance of interdisciplinary science

Cross-fertilisation of traditional academic disciplines from a wider range of relevant research areas must be encouraged, as it is often at these intersections that innovative research is initiated. For example, interactions

¹ Academy of Medical Sciences, '*Redressing the balance: the status and valuation of teaching in academic careers*', March 2010. <http://www.acmedsci.ac.uk/p99puid181.html>.

between social science, economics and drug development could allow models of human behaviour to be further developed that facilitate patient adherence to prescription regimes. Moreover, a deeper understanding of the human biology that underpins health and disease would help better identify which new medicines might be successful. By encouraging the training of scientists able to span disciplines, innovation will be advanced. An interdisciplinary team-based approach needs to be encouraged and prioritised in biomedicine teaching and research.

The development of talented interdisciplinary researchers and clinicians who take a more team-based approach to science can be achieved by:

- Creating funding opportunities that specifically combine disciplines.
- Modifying degree courses to contain a greater interdisciplinary component.
- Creating specific training positions that allow and facilitate interdisciplinary training to ensure this approach pervades all career levels.
- Multi-level networking between scientists of different disciplines and seniority.
- High-level support from institutions to commit to increasing interdisciplinary work.²

Facilitating technology transfer and funding the space between academia and industry

Addressing new health, scientific and economic challenges will involve drawing on strengths from across sectors and encouraging organisations to collaborate to share expertise, skills and resources. Our universities are a unique strength and an important source of new drugs and technologies that have commercial potential; however the broader policy framework within which new innovations are researched and developed is key to increasing commercial output from basic research. To be more successful we need to:

- *Increase university performance in technology transfer*, by promoting an increase in the ability of universities to work together to form a unified framework of technology transfer, with investment to promote university capacity in licensing negotiation, spinout creation and market research.
- *Incubate innovations in academia and support early translational research*, to increase the potential for investment from venture capital and the pharmaceutical industry. Strong and coherent public programmes to support early phase innovation in universities will leverage further inward investment in the UK and bridge the gap between idea generation and commercial financing. Incentive mechanisms such as the Research Excellence Framework should recognise the value of entrepreneurial and translational science activities.³

A number of schemes already exist to facilitate technology transfer and fund the space between academia and industry, including the Medical Research Council's (MRC) Developmental Pathway Funding Scheme, the newly announced Biomedical Catalyst Fund and initiatives by the Technology Strategy Board (TSB). However, there are significant opportunities to enhance such schemes. In the long-term such support will provide substantial returns through health benefits associated with the use of innovative therapeutic agents, increased tax revenues, jobs and sustainable economic growth.

Encouraging and developing 'hubs' for biotechnology and innovation

In the UK's world class universities, hospitals and companies we have the individual building blocks for a flourishing 'innovation ecosystem'. The future success of this sector lies in putting these elements together and collaborating to share expertise, skills and resources. Successful 'hubs' for biotechnology and innovation, such as around Oxford (Thames Valley) and Cambridge are a key aspect of this, and are dependent upon a critical mass of academic and commercial scientific activity, a high percentage of the local population being degree-qualified, an exchange of personnel across the academic and industry sectors and a supportive legal, financial and capital infrastructure.

² Academy of Medical Sciences response to the response to the House of Lords Science and Technology subcommittee inquiry into higher education in STEM subjects, November 2011. <http://www.acmedsci.ac.uk/p100puid234.html>.

³ Academy of Medical Sciences response to the House of Commons Science and Technology Committee inquiry into bridging the 'valley of death' and improving the commercialisation of research, February 2012. <http://www.acmedsci.ac.uk/p100puid245.html>.

One important way to support the development of hubs is by increasing the funding available to establish open innovation centres, such as the Stevenage Bioscience Catalyst campus funded by TSB and GlaxoSmithKline. This new facility provides the infrastructure for small and medium enterprises to form a base that will facilitate partnerships with larger pharmaceutical companies, allowing resources and skills to be shared. The Academic Health Science Networks that bridge academia and the NHS, set out in the NHS Innovation Strategy, will also offer a major opportunity to increase collaboration. Supporting and growing these Networks will help them act not only as a hub for innovation, but as a framework for applied health research, diffusion of evidence and research-informed education.

What role should higher education play in providing skills for the job market?

Highly skilled individuals are the UK's most valuable resource, ensuring resilience and enabling our rapid response to future economic recovery. However, prior to the current economic downturn, a succession of inquiries raised concerns about the supply of the skills needed by UK pharmaceutical and biotechnology companies. A survey of pharmaceutical companies by the Association of British Pharmaceutical Industry (ABPI) identified skill shortages predominantly in the *in vivo* science disciplines (e.g. physiology, pharmacology including clinical pharmacology, toxicology and pathology) and chemistry. Skills gaps in the drug development pipeline also need to be addressed.

We must nurture and develop a pool of talented bioscience professionals – across the healthcare, academic and private sectors – who are equipped with the full range of skills needed to advance understanding and develop novel interventions and diagnostics for major diseases. This will aid researchers in acquiring the necessary entrepreneurial and management skills required to be able to commercialise academic research, and facilitate the sharing and dissemination of knowledge in the innovation system. The Academy places particular emphasis on supporting doctoral students, early postdoctoral researchers and clinician-scientists, both as a cost-effective way of sustaining the research base and for their important role in supplying the wider workforce and economy.

Promoting career flexibility and mobility

The mobility of researchers between industry, academia and the health service needs to be improved to facilitate closer partnership and the dissemination of talent. Opportunities for promoting flexible collaboration across sectors should be seized to develop a biomedical workforce with the skills to move between and bridge sectors, these include:

- Fostering interactions between academia, industry and the NHS such as short-term exchanges, secondments and mentoring across sectors.
- Promoting flexibility in career options, such as mutually agreed indicators of individual success that are shared across academia, industry and the NHS, and providing mechanisms for clinicians to maintain clinical registration while in industry.
- Raising awareness, such as 'industry days' at universities and the extended provision of open days at companies.
- Encouraging Universities to better recognise and reward industrial engagement and achievement in performance review of staff.
- Gaining a greater understanding of the UK biomedical research workforce profile by collecting and disseminating more data on workforce numbers to allow a more strategic appraisal of mobility between sectors.⁴

Additional priorities include the need to ensure that academia is involved in healthcare workforce planning and that immigration policy does not deter the brightest and best researchers.

⁴ Academy of Medical Sciences, '*Careers for biomedical scientists and clinicians in industry*', September 2007. <http://www.acmedsci.ac.uk/download.php?file=/images/publication/Careersi.pdf>.