The science of enhanced student engagement and employability: Introducing the psychology stream of the inaugural HEA STEM Conference

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THE Higher Education Academy (HEA) is committed to enhancing the quality of learning and teaching for all university students in the UK, and the inaugural conference for the Science, Technology, Engineering and Mathematics (STEM) subjects, held in April 2012 at Imperial College, London, aimed to showcase research and evidence-based educational innovation in the STEM subjects, including psychology. The research presented in this issue of *Psychology Teaching Review* includes nine of the papers presented at this conference, which demonstrate the high quality pedagogical work taking place in our discipline. Before introducing these papers, we will discuss the context in which the conference took place, highlighting the place of psychology within STEM.

Since the Browne Review (2010), Higher Education (HE) in the UK has been experiencing a period of unprecedented change. The increase in undergraduate student fees alongside a cap on student numbers may dramatically change both the types and numbers of students who enter university in England from September 2012. At the time of writing, university applications for 2012–2013 are down by 7.7 per cent on last year (UCAS, 2012), and there are concerns that working-class, mature and minority ethnic students are being dissuaded from entering HE by the increased fees. Likewise, fees are likely to impact on student choices prior to entry and their expectations once they arrive. Concurrent with the potential reduction in student numbers and the rise in student expectations and consumerism, the National Student Survey (NSS), the various university league tables and the new Key Information Sets (KIS) will allow students to compare universities in an unprecedented way. Students accruing large amounts of debt in order to study for degrees will be looking for the best possible value for money and the best available learning experience. In addition, they will be concerned about their ability to repay their loans, and as such, employability and skills development are higher on the agenda than ever before. Universities are, as a result, competing in a new type of market place, where students are harder to recruit and are more discerning. Unsurprisingly, universities are keen to increase their attractiveness to potential students through demonstrating their excellence in learning and teaching, high levels of student satisfaction, and the benefits to students of studying with them.

Psychology is very well positioned to respond positively to these opportunities in learning, teaching and research. Psychology traditionally has been popular with students; according to the Quality Assurance Agency (QAA, 2010), psychology is the largest scientific discipline, and the second largest discipline overall. Furthermore, the quality of psychological research undertaken in the UK has recently been judged to be comparable to the best in the world (ESRC Inter-

national Benchmarking Review, 2011). Whilst there is no reason to predict a decline in popularity with students at this stage, it is important to recognise some key challenges that face psychology as a discipline in the face of the more general changes within HE. We need to demonstrate to students the specific value of choosing psychology degrees over and above other options. Having recruited our students, we then also need to ensure that we retain them, engage and satisfy them, and that they succeed. This is often crystallised in terms of the student experience or 'added value' that surrounds the course on paper. The importance of high quality learning and teaching experiences for our students cannot be underestimated, and determining 'what works' in learning and teaching, through rigorous research, is of paramount importance for quality enhancement (Kember, 2000). It is especially important that pedagogic research and innovation are facilitated at a time when the fundamental values of higher education are challenged, and such innovation may be under threat (Naidoo & Jamieson, 2005).

One of the principle measures used by students in choosing university courses comes from the NSS, the results of which are used to inform a variety of university league tables (for example, *The Times*, *The Guardian*, and *The Complete University Guide*). The NSS is administered to all undergraduate students in the final year of their degrees, and through a series of 22 questions, attempts to measure student satisfaction with important aspects of their learning experience. Questions relate to the quality of learning and teaching, assessment and feedback, academic support, organisation and management, learning resources and personal development, as well as overall satisfaction. The NSS is not without its critics (for example, see Cheng & Marsh, 2010), but nevertheless has been the main measure of university performance since 2005, and universities are well advised to attend to their own ratings and to use the data to attempt to enhance learning and teaching within their

institutions. Two papers in this issue demonstrate ways of improving our understanding of the NSS. Chris Pawson presents a fascinating insight into the differences between STEM and non-STEM students in terms of their satisfaction ratings; especially intriguing are the sex differences he reports, and the practical implications for learning and teaching of science subjects including psychology. Chris Gibbons has investigated the influence of personality and stress, amongst other things, on NSS scores and student engagement, and has found, perhaps unsurprisingly, that the picture is complex. Of particular concern are his findings that student motivation to learn is negatively correlated with student satisfaction!

Student engagement with the learning experience is influenced by the teaching methods employed (Ramsden, 1992; Biggs, 1999). This is clearly demonstrated by Naomi Winstone and Lynne Millward's first paper in this issue, looking at ways of increasing student engagement in lectures through interactivity and formative assessment. Interestingly, not only can student engagement be increased in this way, but staff satisfaction with large-group teaching also improves. Content is another influence on engagement, and students can find learning about research methods challenging. Two of the papers here address the ways in which psychology students engage with the scientific content of their studies. Tom Dickins and Peter Donovan present a stimulating and innovative approach to engaging students in scientific thinking about psychology, through delivery of an animal behaviour fieldwork course, which helps students to develop their understanding of hypothesis testing, operationalisation of variables, and scientific method. Whilst not every department may be able to fund psychology field trips, the ideas contained within their article could be adapted to use of video clips, or excursions to the local park.

Research into the student experience, then, can help us to address issues of student

expectations, particularly in the light of increased fees, and the resulting good learning and teaching can help us to produce motivated students, and hopefully more engaged and satisfied students. However, fees have raised other concerns about student (and parent) expectations of university education, particularly around employability. Graduate employability is measured six months after graduation through the Destination of Leavers in Higher Education Institutions (DLHE) statistics; psychology graduate-level employment is relatively low compared to other subjects, with 43.56 per cent of psychology graduates in full-time employment at the census point compared to 51.39 per cent as an average for all subjects (HESA, 2012). The argument can be made that this is, at least in part, due to the nature of psychology. Unlike, for example, medicine, a psychology degree does not equip the graduate for direct entry to a profession, and competition for the requisite postgraduate professional training to become a psychologist is intense. According to the QAA (2010), only 15 to 20 per cent of psychology graduates enter careers as professional psychologists. Six months after graduation, therefore, many of our most able graduates will be seeking to develop their skills and experience of working with a client group in order to compete for places on postgraduate training courses, and will not be employed formally at graduate level (Van Laar & Udell, 2008). This may be evidenced by further data from the DLHE statistics; 3 per cent of psychology graduates are undertaking voluntary or unpaid work only at the census point, compared to 1.95 per cent of graduates across all subjects (HESA, 2012). As a direct response to this, the British Psychological Society are currently undertaking a longitudinal study of graduate destinations over five years, to provide a better insight into psychology graduate careers.

However, experience seeking may not be the only reason for the low recruitment of psychology graduates to graduate-level posi-

tions as measured by the DLHE statistics. According to a HEA analysis of the 2011 NSS data (HEA, 2012a), psychology students appear to be less confident about employability-related skills such as 'present myself with confidence', 'communication skills' and 'tackling unfamiliar problems' (questions 19 to 21 of the NSS) than other students, other STEM students, or students of salient comparator disciplines such as biology and sociology. Whether real or perceived, lack of confidence in these skills may result in underperformance during selection processes and so directly impact on the employability of our psychology graduates. Thus improving both psychology graduates' employability skills, and their own awareness of those skills is an important priority for providers of undergraduate psychology education.

The British Psychological Society (BPS, 2011) accreditation of the psychology undergraduate curriculum places a very strong emphasis on the scientific nature of psychology. Students typically engage with substantive research methods training, make extensive use of statistics and general numeracy skills, develop strong computing skills, and carry out their own experimentation, often in the context of a variety of theoretical models including cognitive, social and biological psychology. They learn to present research and data in an organised, clear and scientifically appropriate report format. In their final year each student will carry out an 'independent and substantive' piece of research in the form of their final year project. The skills required to undertake these elements are very characteristic of any STEM subject, and at a time when the government is decrying the numbers of graduates with STEM skills (House of Lords Select Committee on Higher Education, 2012), one might expect that psychology graduates would be in exceptionally high demand. However, psychology graduates achieve a range of other skills which are perhaps less likely to be associated with STEM subjects, and may be more tradition-

ally found in humanities graduates (QAA, 2010). Psychology students are frequently engaged in activities such as group projects, essay writing, and presentations, all of which help to develop communication skills. They learn about the nature of human diversity, and they are trained to think critically and to reflect on their own development and learning. The subject content of psychology encourages an awareness of interpersonal issues, of ethical practice, and generally raises social awareness. These supposedly 'softer' skills may be enhanced in some programmes in which students engage in extensive personal development planning, option modules providing training in counselling theory, or work placements, especially with vulnerable client groups.

This combination of traditional science and humanities skills led Trapp et al. (2011) to describe psychology as a STEM+ discipline, offering students the advantages of studying a STEM subject with added value from skills such as communication. Psychology graduates are viewed as informed, scientifically literate citizens who can critically appraise evidence to come to an informed view on a variety of issues, and can communicate that view with diverse audiences. In addition, Trapp et al.'s report highlighted the importance of the development of 'psychological literacy' (Cranney & Dunn, 2011), the ability of psychology graduates to use psychological understanding and skills in everyday life, to solve problems and to benefit their communities and workplaces, even when not employed in professional psychology.

Thus it is apparent that psychology as a discipline has a great deal to offer its students and graduates in terms of skills, employability and more generally. Our first challenge, then, is to ensure that students not only develop these skills, but that they become fully aware of their abilities, and are able to articulate them. The pedagogy of employability is becoming well developed in a generic context (see, for example, HEA, 2012b) and it is heartening to see that

psychology academics are engaging in discipline-specific research to develop a strong evidence base that we can use within our own teaching for employability. Within this issue, two papers exemplify this approach. The work of Carolyn Mair on enhancing students' metacognitive skills through student reflection highlighted ways to encourage students to think about their skills both during the degree and importantly to continue after the degree. The paper from Rachel Bromnick, Ava Horowitz and Daniel Shepherd discussed the benefits of volunteering for psychology students, and interestingly part of the presentation from Daniel highlighted a student perspective.

The development of student skills can also be enhanced through peer learning (Topping, 2005), and three of the articles in this issue demonstrate different approaches to facilitating this. Anna Stone, Claire Meade and Rosemary Watling have combined the concepts of peer learning and promotion of employability by employing final year psychology students to mentor first years who were seeking additional support with learning about research methods and statistics. This innovative idea has the potential to engage first years with a sometimes challenging area of the course, whilst developing the leadership and communication skills of the third years in way that directly feeds into employability. Naomi Winstone and Lynne Millward's second paper provides an excellent introduction to the principles of constructivist learning, and utilises psychological models of reducing sociocognitive conflict to promote learning from peers within a cohort during formal classes. This type of approach can sometimes be time consuming, and Jacqui Taylor presents her ideas on the use of online discussions alongside face-to-face teaching to promote similar learning experiences. Usefully, Jacqui also describes her assessment methods, and reflects on the possibility that automated assessment may one day be possible.

In summary, academics, researchers and teachers in psychology are keen to teach our

students well, to engage them and motivate them to become independent learners, and to develop their skills in ways that will support their lifelong learning journey and their employability. As a discipline that is interested in human behaviour, cognition and experience, we are exceptionally well placed to study 'what works' for students, and to apply our rigorous research methods and theoretical frameworks to under-standing how to best provide them with high quality learning and teaching experiences. Our final challenge is to ensure that the best practice we identify, and the evidence that supports it, is disseminated as widely as possible. Trapp et al. (2011) note that, in a competitive HE market, collaboration may be challenging, but that in sharing knowl-edge, the discipline of psychology is strengthened, and we all benefit. The HEA STEM conference papers highlighted within this issue of *Psychology Teaching Review* demonstrate the validity of that observation. The conference brought together psychology academics from universities across the UK, along with technical staff (Dickins & Donovan) and students (Stone et al.; Bromnick et al.) working in partnership, under the banner of the HEA. The team who reviewed and planned the psychology content included Julie Hulme, Discipline Lead for Psychology at HEA, Jacqui Taylor, Editor of this publication, and Mark N.O. Davies, the Chair of the Association of Heads of Psychology Departments. Dr Peter Banister, the current President of the British Psychological Society, opened the psycho-logy strand of the conference with a stimu-lating talk on the scientific nature of psychology and participated throughout. These types of partnerships, and the sharing that results from them, will help the psychology community not only to cope, but to grow and develop, during these chal-lenging times for HE.

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