The future of pedagogical action research in psychology

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Psychology lecturers are well-qualified to carry out action research which would contribute to the theoretical understanding of learning as well as having practical benefits for students. Pedagogical action research demonstrates how knowledge of psychology can be applied to solve practical problems, providing role models of psychological literacy to students, who can also beneficially be involved as participant researchers. Academics are urged to collect evidence to influence policy where higher education is facing new challenges, whether from changing economic conditions, technological developments, globalisation, student diversity, or greater expectations for personalised, engaging, and flexible learning. Five specific areas within the teaching of psychology are identified as offering rich opportunities for action research: study abroad; study skills for transition to university; engaging students with statistics; gamification; and teaching psychology to students from other disciplines. Readers are invited to join the authors in collaborating on future pedagogic action research in these areas.
Keywords: Pedagogy; future of higher education; action research; teaching psychology; study abroad; transition to university; study skills; critical thinking; statistics anxiety; student engagement; gamification; open badges; psychological literacy.

Introduction
Sophie Cormack

IMMENSE social and economic change is taking place in higher education, not just in the UK, but worldwide. Each of the last three editions of this publication has started out referring to rapid changes, whether in rising expectations of teaching quality and student support, or the difficulty in planning ahead in a changing socio-political landscape (Bereznicki, Sutherland-Smith & Horwood, 2014; Jones, Upton & Wilkinson, 2013; Winstone & Bretton, 2013). While it is difficult to predict what the future will bring, some trends are already emerging, with increasing globalisation, widening participation, and demand for vocationally relevant and flexible learning. We argue that action research is necessary to make best use of new opportunities, and to facilitate learning of the skills students need to thrive in the changing world. The previous Special Issue of this publication put the case for action research in psychology (Norton, 2002) and gave examples of how it can influence policy

(e.g. Lindsay, Breen & Jenkins, 2002; Lindsay, Breen & Paton-Saltzberg, 2002). By working together as a community of practitioner-researchers we can shape the future of higher education. This paper examines five areas of pedagogy which are particularly important in the current climate. We argue that there are great opportunities for psychologists to carry out action research in these areas, and our aim is to invite interested readers to join us in collaborative research.

Pedagogical action research is carried out by educators to examine their own practice for the purpose of enhancing student learning (Norton, 2009), for example, by modifying teaching, improving assessment feedback, or redesigning the curriculum. It can also be used to gain a better understanding of the student experience or to evaluate changes, innovations, and interventions. Its main role, therefore, is in driving positive changes in teaching, learning and

assessment. We may follow some of these processes in an informal way, as reflective practitioners involved in annual review and curriculum development, however, without a research question and a methodology, attempts to improve student learning tend to be unsystematic and unrecognised. A carefully planned research project is likely to have more value for students, and increases professional recognition for staff, as well as benefitting the educational community.

Norton (2009) describes action research as typically, or ideally, having the following characteristics. Firstly, practitioners frame the research as a social practice, acknowledging the context-sensitivity of the research. Researchers carry out systematic inquiry with rigorous methodologies, though it is not usually possible or desirable to carry out controlled experiments: instead they often draw from qualitative methods of inquiry, with some quantitative analysis. The research process tends to involve cycles of reflection on practice resulting in progressive improvements or insight. Finally the research is participative, in that work in progress is shared with students, colleagues, or the wider research community to minimise individual researcher biases, and to benefit from collaboration and external scrutiny. This contributes to the theoretical knowledge base and disseminates examples of good practice across the education sector.

As Hartley and Norton (2002) point out, psychologists are in an ideal position to carry out pedagogical research for two reasons, firstly because theories of learning are part of psychology, and secondly because psychologists are already expert with a range of methodologies and both quantitative and qualitative data analysis techniques. It is, therefore, puzzling why there is relatively little pedagogical action research carried out, compared with the amount of research within other areas of applied psychology. In the book *Undergraduate education in psychology: A blueprint for the future of the discipline*, Halpern et al. (2010) argue that lecturers 'should make the same commit-ment to using the science of learning in their teaching as the discipline requires of scientist-practitioners who use the findings of psychological research in their practice' and 'refine instructional practices in ways that enhance the success of future students' (p.165). In other words, an excellent teacher is a pedagogical action researcher.

Many questions remain to be explored about best practices in teaching, learning and assessment, about how to use new technologies, about student motivation and satisfaction, and how to prepare psychology students for study and employment. This paper focuses on five potential areas for pedagogic research in psychology, demonstrating ways to prepare for changing needs and expectations in higher education.

Competition for financial resources means that universities are reaching out to find new students overseas (British Council, 2012). It is important that universities prepare for increased internationalisation, not just by catering for the needs of international students, but also by increasing cultural awareness in home students, so that all students are prepared for an increasingly globalised future. The first section of this paper, 'Psychology for transatlantic students', examines the challenges which occur when students study abroad, and how pedagogical action research could be used to prepare students for different expectations of study.

Preparing students for different expectations of study is also the theme of the second section, which examines the transition from school or college into university. With greater numbers of students entering higher education, student diversity is increasing. As Biggs and Tang (2011) point out, staff now need to put more work into making sure students are actively learning the skills they need. For many students, making the transition to become independent and critical learners is not easy, and more research is needed on learning and teaching study skills at university.

Universities are coming under increasing pressure to improve student engagement,

partly due to a recognition of the importance of intrinsic motivation and self-efficacy (Pintrich & De Groot, 1990; Pintrich, 2003), and partly due to dependence on student ratings and retention statistics for market competitiveness. In psychology, one major challenge is to motivate and engage students in their early statistics and research methods training. Involving students in pedagogical action research could help to address these issues, as argued in the third section of this paper.

Technology is one of the drivers of change in higher education. The 2011 European Commission Report *The Future of Learning: Preparing for Change* predicts that education will become more personalised, collaborative and informal (Redecker et al., 2011), for example, involving social networking and flexible learning. The fourth section discusses a specific use of technology, gamification. Gamification is the incorporation of some elements of digital games into a non-game setting, for example, the self-paced accumulation of 'points' or 'badges' as a measure of achievement. Gamification seems particularly suited to support personalised and flexible learning and would be a fertile area for pedagogical action research.

Another aspect of flexible learning which, in a recent report for the Higher Education Academy, Barnett (2014) believes will become increasingly important for the future of the knowledge economy, is the ability to work within a cross-disciplinary research team. Barnett (2014) argues that universities need to offer students more flexibility in switching between disciplines during a course of study so that they can be immersed in different styles of thinking. However, he points out (p.59) that a modular degree scheme, which appears to support such flexibility, may confront students with unexpected barriers to cross-disciplinarity. The fifth section of this paper, 'Where's the evidence?', describes the challenges which occur when students from a different discipline are introduced to

psychology, and identifies three areas where action research might find solutions.

1. Psychology for transatlantic students: Can we improve the learning experience?
Rosamond Watling

Study Abroad schemes are becoming more accessible to psychology undergraduates, with numerous universities now offering them as options. A high priority for host institutions is for overseas students to have an outstanding experience and to encounter positive immersion in a new culture, and divergent ways of thinking and learning. Pedagogical action research is an ideal paradigm for investigating the success of these aims and, ultimately, enabling further enhancement of the student experience. The current author teaches a number of cohorts of visiting American students, thus the focus here is on student exchange between the UK and the US.

For BPS accredited undergraduate programmes, it is usually necessary for the Study Abroad year to take place after Year 2 and before Year 3 in order to ensure that core modules are covered, adding a year to the normal three-year period of study. Despite this, studying abroad is an attractive proposition with many UK universities reducing home tuition fees by up to 80 per cent for the extra year abroad, and no fees payable to the overseas host institution. For overseas students, coming to the UK to study for a semester or a year is a popular strategy also, often enabling students to accrue academic credits that contribute to degree studies at their home institutions.

There is overwhelming evidence to suggest that spending a year studying abroad has a host of advantages. In today's increasingly global economy, career prospects are enhanced by the experience of acculturation. The Confederation of British Industry reports that 61 per cent of employers perceive shortfalls in applicants' international cultural awareness (CBI, 2011) so there can be a distinct advantage for appli-

cants who demonstrate experience of studying abroad. The literature suggests that immersion in an unfamiliar culture has a number of psychological benefits, including increased creative cognition (Lee, Therriault & Linderholm, 2012), increased reflective thought, self-reliance, and self-confidence (McCabe, 1994; 2001) and profit in terms of personality development, for example, growing openness and emotional stability (Zimmermann & Neyer, 2013).

These benefits can be attenuated by adverse effects, for example, pervasive home-sickness (Lu, 1990), and depression and somatisation (Sam & Eide, 1991). Cognitive dissonance can arise as a result of trying to reconcile conflicting cultural knowledge and traditions, resulting in stress and anxiety (Tadmor & Tetlock, 2006).

The top Study Abroad destination for UK students is the US and the top destination for US students is the UK, with 8897 and 14,810 students respectively in 2012 (UNESCO, 2014). Whilst the culture and language differences between America and Britain are less problematic than they might be for, for example, a student from China studying in the US, there still remain differences in cultural expectations and values (Ryckman & Houston, 2003).

The study of psychology has its own challenges in terms of differences in expectations between the UK and the US. The programme structure of a US degree is very different from that in the UK; American undergraduates choose a major and a minor subject in a liberal arts degree (BA) and study for four years. If a student chooses to study psychology, there is no consistency between institutions as to the modules taught, so it may be that they come to the UK without the prior knowledge that is assumed of all students on a BPS accredited programme in the UK.

There are significant differences in assessment also. Whilst UK degrees are generally assessed by one or two coursework assessments and an exam, US students engage in much more 'homework' throughout the course of a module, as well as summative in-class tests, and class participation plays a part in the awarding of grades.

Perhaps the most fundamental difference between expectations is the general learning style. Whilst in the UK we advocate independent learning and time management, American universities 'encourage questions, collaboration, and for students to seek constant input from advisors and professors' (Vallone, 2013, p.1). A further difference lies in the emphasis given to critical thinking in UK degrees, particularly in critiquing psychological studies and theory. Though the American system does encourage reflection on textbook material there is not the drive to develop critical thinking skills. Remington and Green (1990) suggest that this difference represents a cultural bias with deep political and historical roots.

Given these disparities, it is unsurprising to find that many students struggle to meet expectations during their time abroad. An important opportunity exists here for participatory research to improve the student experience, in collaboration with students in both countries, and between UK and US psychology departments. A potential outcome would be a programme of targeted preparation for students embarking on transatlantic Study Abroad programmes in psychology.

With this aim of modifying practice in mind, pedagogical action research is a pragmatic approach, which promotes reflective practice and positive change. Initially, a qualitative interpretative approach could identify the student experience after returning from a Study Abroad period in the UK and the US, as well as the expectations of instructors in both countries. Additionally, how closely the student experience matched students' own expectations could be assessed quantitatively. Not to do so would limit positive outcomes of students from both sectors who venture to study psychology cross-culturally.

2. Students' transition to university: Learning how to learn

Charmaine Deuker

One of the many challenges faced by students who are starting university for the first time will be concerns about the difficulty of the work, the amount of studying they will be expected to do and whether they will cope with the demands made of them (McMillan, 2013). This is compounded by the fact that many of these students will start higher education with little knowledge of how to study independently (Smith & Hopkins, 2005) and presumably as a result of this they will be lacking the study skills needed to engage with the complexity and context of their subjects.

Many students will need help to enable them to deal with the demands of the 21st century and in order to achieve these ends, the teaching also needs to adapt by incorporating strategies and techniques, (e.g. by encouraging self-directed learning) to enable students to acquire higher order cognitive skills. With the growth in the use of information technology and increased communication, the skills needed to decipher, interpret and make sense of such data is of paramount importance (Dede, 2010).

One way that such assistance can be given to help students to work more efficiently is by training them to develop higher order cognitive skills such as critical thinking. Such skills aim to redirect the emphasis in teaching and learning from students engaged in rote learning and memorisation of factual information, to foster instead learning that is underpinned by meaning and understanding of the content (Koh, Tan & Ng, 2012). However, it is argued that teaching that presently occurs in traditional classrooms hinders the growth of these skills (Facione, 2010) and it is widely acknowledged that formative tests do not assess these competences (Dede, 2010). If this is indeed the case, the majority of students will find studying at university level a difficult challenge; many of these students will arrive with very good A-level grades, but will be 'relatively weak in the higher order cognitive skills: critical thinking; creative thinking; innovative thinking; and real-life problem-solving' skills (Koh et al., 2012, p.147).

It is evident that many students have not acquired the higher order cognitive skills, regardless of whether they hold degrees or not (Stapleton, 2011), but teachers also lack the necessary training and skills to develop these competences in their students (Koh et al., 2012; Stapleton, 2011). Research suggests that this situation is also evident in the higher educational sector, in that practitioners were found to have an incomplete understanding of what critical thinking entailed and also felt they needed training themselves in how to deliver these skills to their students (Stedman & Adams, 2012).

So herein lies the problem that needs addressing: students need to be taught how to utilise higher order cognitive skills; teachers need to teach these skills to students in order to help them to develop in this area; teachers and lecturers themselves need to be taught how to transfer these skills in the delivery of their lessons. Presumably there are many factors that make the implementation of these ideas difficult, however, action research can be used in the first instance, to enable practitioners to reflect on their work and identify the issues that hinder the teaching and learning of these skills.

Action research could then be utilised to identify intervention strategies that would determine what training and skills teachers think they would require providing them with the confidence and the skills needed to develop these competencies in their students. Suggested interventions could include: research to determine how much critical thinking already occurs; research to find ways to measure higher cognitive skills; joint research between schools and universities to identify the skills and competences universities expect in their new students; research to determine what issues teachers have about adopting this approach in their teaching.

'…education is about learning how to learn, which means learning to think for yourself, on your own and in collaboration with others' (Facione, 2010, p.22).

Engaging in action research provides an invaluable way in which to inform and direct the teaching and learning of others. Such research into the development of higher order cognitive skills would serve to empower students with the confidence and ability needed to engage in independent learning. This is the best way to help prepare students to make a smooth transition to the higher educational sector.

3. Teaching statistics to psychologists
Victoria Bourne

Research methods and statistical analysis form a fundamental part of the curriculum for any psychology undergraduate degree. It is also, perhaps, one of the most widely researched areas of pedagogy within psychology. This is likely to result from statistics being seen as a very challenging area of the curriculum, from both the tutor's and the student's perspective. In this section, two of the key areas of pedagogical research are highlighted: students' expectations and students' anxiety. The ways in which action research may be able to further enhance our teaching within this area of the curriculum are also considered and proposed.

Students' expectations and understanding of the relevance of statistics
Although research methods and statistical analysis forms a large part of the typical undergraduate psychology degree, for many new students this is quite a surprise. Indeed, research has shown that around 45 per cent of new psychology students are not aware that they will even be learning about statistics (Ruggeri et al., 2008). Additionally, many students report that they do not understand the relevance of statistics within a psychology degree or for their future career (Murtonen et al., 2008).

These false or negative expectations can have a significant impact on students' learning styles and achievement. For example, Ruggeri, Dempster and Hanna (2011) showed that students find statistics significantly less enjoyable across their first year of studies and Murtonen et al. (2008) found that students who see statistics as irrelevant tend to take a more superficial approach to their learning.

Although both the research and the personal experience of most teachers of statistics clearly demonstrate that psychology students have either no expectations or negative expectations of the statistical component of their degree, little research has considered how this might be improved. Action research is ideally suited to addressing this issue due to its iterative and cyclical nature. A series of action research studies may seek to involve students in the research to identify the key issues and to brainstorm potential interventions. These interventions could then be evaluated and improved upon across multiple cycles of action research.

A second approach may be to consider more specifically the transition between A-level and undergraduate degree. Often we attempt to address misconceptions about the role of research methods and statistical analysis once students begin their undergraduate studies. As an alternative approach, it may be more effective to develop resources for prospective students to help aid their transition into the degree. This may then increase their awareness of the quantity and relevance of the research training that they will receive. Again, action research would be ideally suited to evaluating such a transitional intervention. Existing students could be involved in developing the intervention by providing a unique insight into their experiences and expectations, which could form the basis of the intervention.

Students' anxiety
Many students find the statistical component of a psychology degree the most anxiety provoking element of the curriculum, with

up to 80 per cent reporting statistics anxiety (Onwuegbuzie & Wilson, 2003). In addition to high levels of anxiety being distressing for students, high levels of statistics anxiety have been found to predict both lower perform-ance (Hanna & Dempster, 2009) and ineffi-cient learning strategies, such as procrastination (Onwuegbuzie, 2004). Statis-tics anxiety is multifaceted, and includes six distinct components (Hanna, Shevlin & Dempster, 2008): worth of statistics (perceived usefulness), interpretation anxiety, test and class anxiety, computation self-concept (perception of their own mathe-matical ability), anxiety when asking for help, and fear of statistics teachers.

Although some research has considered interventions to reduce statistics anxiety in students (e.g. Bourne, this issue; Hood & Neumann, 2013; Stone & Meade, 2012), there is still a relatively small evidence base to support successful interventions to reduce statistics anxiety. The research that has been conducted tends to rely on the existing research that attempts to understand statis-tics anxiety. However, this research has tended to rely on psychometric and performance measures, such as anxiety ques-tionnaires and exam marks. There is a real opportunity for participatory action research to enhance both our understanding of statis-tics anxiety and the development and evalu-ation of interventions. By involving the students in this area of research it is likely that unique insights may be gained that will both elucidate our understanding and enable the development of more effective interventions.

Future directions for action research on the teaching of statistics

In the future, it is likely that an action research approach to the pedagogy of teaching statistics could really enhance the learning of experience of students. Perhaps the greatest contribution that could be made to this area of research is a move towards participatory action research. As previously mentioned, the majority of the research in this area has treated students as the passive recipients of research. A small number of studies have involved students more actively in the research by running focus groups. For example, to understand students' views of statistics across all three years of their degree (Ruggeri et al., 2008) or to understand the different facets of statistics (Onwuegbuzie, Da Ros & Ryan, 1997).

Involving students more actively in research about the teaching of statistics is likely to have a number of benefits, for both the students and the researchers. First, by involving students more directly in a research programme, it is possible that they will become more motivated and engaged in the understanding of methodology and statistics. As such, involving students in this action research may in fact function as an intervention in its own right. Second, the students are likely to provide unique insights into these areas of research that may not be accessible using more traditional research methodologies, therefore enabling a greater understanding of the challenges both students and teachers face and the develop-ment of more effective interventions to improve student's learning experiences.

4. Gamification and open badges
Sophie Cormack
Gamification

Gamification is the use of elements of games in a non-game context, to increase motiva-tion (Werbach & Hunter, 2012). Gamifica-tion is increasingly being used by businesses to keep customers engaged with the products or services being offered. Gamifica-tion has also been used for solving scientific problems (as in Eyewire, mapping cells in a mouse retina). Educational games and gami-fication are already being used to some extent in schools, but are predicted to be major areas of technological growth in education (Johnson et al., 2013).

The most common approach to gamifica-tion is referred to as 'PBL' (points, badges and leaderboards). Its assumption that simply competing for points and trophies

will motivate most people has been critiqued as facile and lacking in the elements which make real games truly motivating, such as narrative progression (El-Khuffash, 2013). More successful gamification, like more successful education (Biggs & Tang, 2011), has constructive alignment between the experience and its outcome, with meaningful goals. Good gamification caters for individual differences, providing many possible pathways to achieving personalised goals, and facilitating co-operation and sense of community, as well as being fun (Werbach & Hunter, 2012).

Much can be learnt from the way digital games hook players. Players expect to learn by trial and error and well-designed games provide scaffolding, for example, with pop-up messages. Failure is part of the learning process, and is not catastrophic. Videogames are usually designed to increase in difficulty from one level to the next as players develop skill and build resources, so players gain a sense of mastery by overcoming successive challenges. Feedback on performance is immediately visible, and there are tangible measures of progress. This contrasts with the typical educational experience where all students are paced to the same assessment schedule, most attempts at a task are high-stakes ones, and students may have little sense of how well they have performed until a tutor gives feedback weeks later.

Huang and Soman (2013) describe a course in basic programming which was gamified by embedding it in a science-fiction narrative and dividing it into 22 'missions' with the top 15 student scores displayed on a leaderboard. The gamified system was rated as helpful by 76 per cent of students, though others felt overwhelmed by the number of mini-assignments. The results are typical, showing that gamification is generally well-received, but does not suit every learner. For example, Christy and Fox (2014) concluded that leaderboards encourage social comparison among women, detrimentally affecting performance. Effects on motivation are complex: Plass et al. (2013) found that

children achieved higher scores in an arithmetic videogame when competing, than when playing alone or co-operatively, but in another study undergraduates put more effort into a balloon-popping game when co-operating than when competing (Peng & Hsieh, 2012).

Due to concerns about possible detrimental effects of extrinsic rewards on intrinsic motivation (Deci, Koestner & Ryan 1999, Werbach & Hunter 2012), the areas to target for gamification would be those where students are not already highly motivated. It would be a novel way to address the statistics anxiety identified by Bourne (this issue). Action research would be the ideal methodology to investigate uses and consequences of gamification in psychology. Because a fully gamified learning environment involves investing considerable time and technical resource, early trials could focus on the most easily implemented elements of gamification, such as badges, however, these need to be meaningful. One possibility would be to award open badges.

Open badges
Open badges were first created by Mozilla, a community of free software developers better known for producing the Firefox browser. Open badges are the digital equivalent of the cloth badges that scouts sew onto their backpacks as tokens of achievement. The online versions are digitally-rendered graphics in the shape of a badge which are issued by an organisation and can be displayed on a person's online profile, for example on LinkedIn or Facebook. The badges are stored with meta-data giving detail about the issuer, the date of issue, who it was awarded to, what it was awarded for, and relevant evidence. Badges can be aggregated into higher-level competency-sets with their own meta-badges.

Open badges are being used in schools and further education to recognise 'soft skills' and by companies and training organisations to certify continuing professional development. They are not yet used widely in

higher education, though some universities in the US are adopting them, and the Open University has issued open badges to recognise engagement in online courses. With increasing demands for flexible learning, degrees may become 'mix-and-match' with each student choosing their own personalised curriculum, or the predominant mode of education could be short courses contributing to a portfolio of skills relevant to a particular career goal. The question would then be how to document such piecemeal learning. One possibility is to move to open badges as a form of recognition. At the university level these could link with e-portfolios, and the UK's higher education achievement record (HEAR).

Glover and Latif (2013) describe initial stages of a project to investigate how open badges might be received in UK higher education. They found that both staff and students were positive about the idea, provided that badges represented real achievements and were awarded fairly and sparingly, so that they would have credibility with employers. They also suggested linking badges with the accreditation requirements of professional bodies. In psychology badges could identify skills reflected in the benchmark statements and align with the skills and knowledge necessary for British Psychological Society (BPS) accreditation. Open badges could recognise psychological literacy skills (Mair, Taylor & Hulme, 2013), research methods, communication skills and awareness of ethics. Some skills, such as the ability to work with other students, would be peer-assessed. O'Connor and McQuigge (2013) involved both students and staff in awarding different types of badges. Badges could even be used to recognise knowledge of different areas of psychology, such as developmental or biological psychology, enabling students to collect a set of badges for accreditation. Motivation to learn statistics might increase if students earned an open badge for mastering each data analysis technique, adding to a visible array of achievements relevant to employability.

As with gamification generally, research is needed to investigate the potential and pitfalls of open badges, as they may be motivating for some students but off-putting to others: Abramovich, Schunn and Hugashi (2013) found a complex interaction between learner competence level, achievement goal orientation and badge type. The best chances of success would be to develop badges in collaboration across universities, with both students and staff involved in decisions about their design and use.

It is envisaged that a first stage of the project would probe students' previous experience with badges, prizes, or certificates, their achievement goal orientation, their motivation across different areas of psychology, their career goals, and their initial feelings about open badges. This would establish which types of badges might be most useful for psychology students. A second stage would be for students to decide on the number of badges and their conditions of award, working alongside lecturers and learning technologists. The research team would also work on possible visual designs for the badges and would invite students to vote for their favourites. This would lead on to piloting the project, and then to evaluating its effect in terms of motivation, attendance, performance and any other measures identified by the student and staff project team. This would be a valuable pedagogical action research project for psychology, of both theoretical interest and practical application.

5. Where's the evidence? Teaching psychology writing conventions to non-psychology students
Cathal O'Siochcru and Lin Norton
This section came from our reflections on teaching social psychology to third year Education Studies students. We focus here on written work in order to ask some important questions about the epistemological underpinnings of psychology as a scientific approach to understanding the world around us (O'Siochru & Norton, 2013).

We ask ourselves the following three questions and conclude with some suggestions as to how an action research study might explore these issues further.

Should written work privilege evidence over personal opinion?

The issue of evidence is a crucial element of psychology writing (Beins & Beins, 2008; Miller, 2014), yet when marking our students' work we observed that they often used their personal experiences and opinions to support the points in their essays. This resulted in a strong rebuke from us in our feedback telling them that empirical results, not personal experience, is what the discipline of psychology considers evidence. What they needed were empirical studies whose findings support their claims. For some of our students this was a profound challenge.

Our 'correction' of this error by our students belies a more complex set of issues which underlie the introduction of students whose primary area of study is not psychology to the empirical element of psychology. One of these issues is the contextual nature of the truth. The empirical method used in psychology and other sciences is just one of the philosophical approaches available to help us understand the nature of universe. In many universities students study more than one discipline in a combined honours degree. Depending on the two disciplines this may involve reconciling two very different philosophies (O'Siochru & Norton, 2013). How students achieve this reconciliation is a question well suited to an action research approach.

Conventional research has tended to view student beliefs or tutor practices separately and at a single point in time. Action research would allow us to study how student beliefs and teacher practices interact over time. We could explore how quickly students establish a set of beliefs regarding the use of evidence in psychology and how changeable those beliefs are. We could establish if it matters whether teachers present themselves as enforcers, punishing students who deviate into non-empirical approaches or as advocates, encouraging students to see that embracing the empirical method is part and parcel of being a scientist.

Do we give sufficient guidance?

Another issue we need to reflect on is whether the reasons for adopting the empirical method in psychology are sufficiently explained to non-psychology students being taught psychology for the first time. Students on a BPS accredited psychology course for whom psychology is their main area of study will encounter the rationale behind psychology's adoption of the empirical method in their history and philosophy classes. The BPS considers this important enough to insist on the history and philosophy of psychology to be an integral part of any accredited psychology degree. By contrast, students who are only taking 'a bit of psychology' do not usually have the history and philosophy of psychology as part of their curriculum. Consequently, they may not have sufficient grounding in the reasons why psychology uses the empirical method, what benefits it offers or the reasons why it needs to be carried out in such a specific fashion to be considered valid.

An action research approach could explore and inform how psychology teachers deal with encountering personal experience/opinions as the basis for claims in students' assignment pieces. Do they do more than just point out that it is wrong? Ideally, an explanation should be offered as to the reasons why science does not consider those kinds of evidence to be valid as opposed to empirical evidence. It is important that teachers of psychology reflect on the question of why psychology is (or should be) a science. Otherwise they run the risk of being ill equipped to understand and justify psychology's use of empiricism. Action research in this area could encourage this reflection, allow us to determine the obstacles that teachers face in trying to achieve these aims and identify good practice that

would allow them to move a little closer to ideal practice.

How do we ensure our students do not complete their course with a stereotyped view of psychology as science?

A further challenge when attempting to induct non-psychology students into the empirical method is to avoid conforming to the stereotype of science as a place where opinion is outlawed. It is not hard to see where this stereotype originates. The ideal of the empirical method is total objectivity where the scientist is a completely impartial observer. Superficially, this appears to be a depiction of the scientist as an emotionless machine relaying experimental results without imparting anything to those results. Like many stereotypes this is an exaggeration of reality but those less familiar with science can be unaware of this.

This stereotype can have a real impact on the way both psychology and non-psychology students approach the pieces they write. On one level it can be disempowering. Students may feel that this need to be totally objective takes away their authorial voice (Pittam et al., 2009). They can no longer say what they believe and are relegated to the role of a mere cipher who can only repeat the beliefs of others. It may also lead to some poor scholarship. Some students write essays which do little more than list the findings of previous studies. It could be that this is a misguided attempt to emulate the empirical ideal of objectivity by relating the facts without any subjective opinion. When this approach is marked as incorrect and criticised for being too descriptive, this can serve to only deepen their confusion at what appears to be contradictory rules within psychology. They are told that their opinion is not evidence but at the same time they are instructed not to simply cite previous studies, but evaluate them as well.

The ideal of pure empiricism has been challenged by the scientific and philosophical writings of Heisenberg, Kant and Popper. Total objectivity, like all ideals,

is impossible to achieve. Facts require a scientist to observe and interpret them and both activities change what is being observed/interpreted. While this could be seen as a limitation to scientific objectivity, recognising the critical role of interpretation in science also acts as a refutation of the stereotype of science as a place where opinion is not allowed. Such nuances are difficult for students to understand. Through action research we could explore different approaches to helping them understand. One such approach would be to explain to students that interpretation of results is not the same as delivering a personal opinion but instead may be equated with delivering an informed opinion based on the evidence. In this approach the act of interpretation would be presented as a form of professional or informed opinion, akin to the medical opinion offered by a medical doctor. The ultimate aim of developing an approach like this through action research is the empowerment of students, allowing them to see that they do have a voice, an input to offer in the pieces that they write in psychology. It would also help counter the stereotype of the scientist who does nothing but recites the results or the findings of others.

Conclusion

In summation, we think there are three issues which are worthy of investigation using a pedagogical action research approach (Norton, 2009). Firstly, when introducing psychology to students of other disciplines, we should explore how they are assessed and how assessment practices and guidance shape their understanding of psychology and its relationship to science. For example, in our feedback do we acknowledge the empirical method as being one method among many or the only true method out there? Secondly, when attempting to get non-psychology students to embrace the empirical method in different contexts, the potential impact of explaining the reasons and benefits behind that method is worthy of

study. Do we need to offer more than low marks and negative feedback as our only response when personal opinion is used as evidence in their writing? Lastly, to avoid the pitfall of students stereotyping psychology (and indeed science), action research can help us develop effective methods of enabling students to see that in the act of interpretation they share their informed opinion with their readers, and that this is an essential element of good practice.

Future directions for action research in the teaching of psychology
Sophie Cormack

In the introduction to this paper we suggested that psychology academics are well-placed to carry out pedagogic action research and, arguably, have a professional responsibility to do so. Hulme (2013) argued that academics should be role models of psychological literacy for students, by themselves applying psychological theory in the workplace, most obviously in using knowledge of psychology to inform teaching.

This paper has introduced five areas where there is a need for action research. Three of these topics involve students in transition – transitions between countries, between school and university, and transitions between disciplines. The other two sections of the paper focused on how to increase motivation in areas which may be perceived as less relevant, such as statistics, by involving students in action research. Each section was concerned with facilitating a change in students' approach to study, and we are looking to action research to find robust solutions.

The vision of the future we present here is one where psychology lecturers strive to improve their own practice as teachers, not just by observing how students learn, but by actively seeking to solve problems and investigate new possibilities, in collaboration with other staff and with the students themselves. This ensures that both students and staff are equipped to keep up with future changes and to assimilate new opportunities into their personal and work lives. While the financial climate forces universities to focus narrowly on key performance indicators and league tables, pedagogical action research ensures that learning remains the underlying focus of attention, providing a solid purpose for universities amidst the changes. Norton (2009) emphasises that action researchers need to be reflective and aware of the social context, using collaboration with others, both staff and students, to reduce individual biases and keep an open mind to the diversity of attitudes, beliefs and skills of learners. The use of qualitative data analysis allows sensitivity to individual experiences, while the iterative approach and variety of methodologies allows issues to be explored from a variety of angles. Pedagogical action research places the student first, in a way which in itself embodies the change which is occurring in society, towards the collaborative, informal, and personalised.

We encourage readers to join us in this enterprise, or to devise their own action research. Readers who are interested in any of the proposed pedagogical action research projects are invited to email the authors.

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