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active learning in higher education
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EDITORIAL

Editorial

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As human beings we are 'hardwired' to learn. There is no human being who *cannot* learn, save those who have suffered the most severe brain injury perhaps. Learning begins from the moment we are born, and indeed we now have evidence that we do so whilst still in the womb. For the most important things that we need to do in life, for example, eating, drinking, sleeping and communicating, we do so without being taught how to, whether formally or informally. We learn every day, although we would likely be hard pressed to say what, precisely, we have learned, such is the complexity of the task and the issue of that which we learn consciously and that which we learn subconsciously. Explaining to others what we have learned is not easy and depends in part on our linguistic skills and, in no short measure, on our awareness and capability in terms of recall/memory. Learning can be done only by the human being who does the actual learning; we cannot learn *for* someone else or force them to learn. Whatever learning is or is not (and the debate continues despite the wealth of literature in the area) it involves some kind of change in the brain of the person doing the learning, whether we are a baby, a child or an adult. Data, information, knowledge and understanding are terms that are often used interchangeably in much literature, which provides further evidence that we still have a lot to find out about how 'the stuff outside' is somehow processed in/by our brains in order to become 'the stuff inside our heads'. What 'sticks' or not, or why, is difficult if not impossible to say, given how little we currently know about the workings of the brain.

However, one thing is not contested, namely, that we learn from what is around us, that is, our environment. Whilst we cannot *make* another human being learn something, as educators we can shape what is these days termed 'the learning environment'. This might be a classroom or lecture hall. However, given that so few hours are spent there in the higher education context, none could argue that learning takes place only at that time and in that place and in the presence of an educator. Instead, whatever learning does or does not happen in the brains of our learners takes place *outside* the classroom. We like to believe that such learning takes place while our learners read the material that we have asked them to read, or that they do so whilst they practise particular skills that we have tasked them to carry out. The assessment that we ask them to carry out, say, the writing of an

essay, may also comprise a part of this learning environment in some way. These activities are all determined/set by the educator, of course, and we spend a great deal of time designing such tasks in light of current theories of learning and teaching.

However, the nature of learning is such that it may not necessarily be within our control to manage. After all, we do not say to ourselves, 'well, brain, please process those five design methodologies that I have to know for module x right now, so that this information is both stored appropriately and easily retrievable when I need it'. Instead, this learning may well take place when we are walking to the bus stop, having a cup of coffee or fast asleep and not consciously thinking about those five design methodologies at all. Or, we may be consciously trying to learn those five design methodologies and believing that we are learning but, in fact, learning nothing at all, or learning only part of it, or learning something completely different. However, whatever the role and/or nature of 'the learning environment', we as educators do have some control over what we ask our learners to do in terms of, among other things, the tasks we set for them. Fortunately, our learners *do* learn, despite us, in some cases!

In the first article, entitled 'Teaching style and learning in a quantitative classroom', Jan Giles et al., from the universities of Prince Edward Island and British Columbia in Canada, explore the notions of student-centred and teacher-centred learning. Reminding readers of the educational research over recent years, they provide a useful overview of theories about learning, including those focusing on cognitive and perceptual differences, sensory modalities and personality/psychological types. Our differing 'intelligences', learning styles and/or learning strategies and surface and deep approaches are also reviewed. Whatever we do or do not know about learning, we today recognise that learners are at the heart of learning and that we need to pay great(er) attention to *how learners actually learn*, that is, a greater focus on the student experience. This is in contrast to a decade or so ago, when up to that point we were considered to be overly concerned with our *own* skills and abilities in *delivering* material to our learners. However, whilst we believe today that the design of a learning environment that is considered more student-centred is somehow 'a good thing' (and thus that one which is more teacher-focused is 'not such a good thing') in terms of helping learners to learn, measuring this is very difficult indeed given that, for the majority of us, our learners are not exposed to both approaches in our own classrooms.

It is therefore somewhat unusual to find a study such as this, in which the same students were exposed to both approaches. Class content was identical in each class and was delivered by the same educator. The educators were, as far as is possible, rated as 'equal' in terms of lecturer

knowledge and ability to hold interest. Each class consisted of an explanation of what the class activities would be and, following the two different types of activity (student-centred or teacher-centred), followed by a class evaluation (a questionnaire) and a knowledge evaluation (a quiz). These activities were identical in both classes. Where the classes differed was in the activities that they did or did not do. In the student-centred class the students were put into small problem-solving groups of three or four students. Discussion was encouraged but the students were reliant not on the 'teacher knowledge' but instead on themselves, using repetition of the material presented or deflection of the question in some way if they asked for help or clarification. In the teacher-centred class students had the 'traditional' lecture with PowerPoint slides (hard copies provided), and examples were completed by the educator, with students following along. Questions were politely discouraged.

The result? Students scored better when presented with the material in the 'traditional' format. However, this masks a far greater complexity, as the authors acknowledge in their discussion at the end. Personality, the influence of the background knowledge that students had of the subject matter, the influence of the students' own reasons for their success, confidence and other factors demonstrate that there is in fact no simple or 'right' answer to this. This study demonstrates how important teaching style and interaction with our learners actually is in helping our learners to learn. A more learner-centred approach, as in the study described in the first article, often involves learners actually *doing* something. So, rather than sitting passively in the classroom or lecture hall, taking notes and having little or no interaction with the person delivering the material (such a scenario characterizes the 'traditional' teacher-centred class), students are, in the learner-centred classroom, often up and moving about, discussing things with their peers and/or the lecturer, with the latter playing much more of a facilitative role.

This more 'active learning' has at its heart the notion that learning by doing may help make the content more 'real'. The use of case studies, role-playing, discussions of aspects of the discipline as they are played out in the workplace, that is, the more practical rather than theoretical aspects, assume a more prominent position in the more learner-centred classroom. The use of role-play and/or games in higher education is an area that, with the ubiquity of computing technology these days, is an area of experiential learning that explains why it is the focus of the second article. Entitled 'Simulation and games: use and barriers in higher education', Jonathan Lean et al. examine the use (and non-use) of simulation and gaming approaches used in higher education. Their study revealed that simulations, games and role-play are widely used but that role-play and other non-computerised games were used more often than computerised ones. Given

that this was somewhat surprising in the institution where this study was carried out, the authors use the evidence to put forward reasons as to why this might be. Whilst it might be thought that a lack of resources might be one of the barriers to their adoption, it seems that a lack of awareness of the benefits has a more significant impact in the decision-making as to whether or not simulations, games and role-plays are used in the classroom.

Whilst learning is hardwired in humans, learning things in the formal context is a skill that can be, and is, taught and needs to be acquired if learners are to succeed in their studies. Whilst we, as educators, are keen to stress the value of learning per se, in contrast to the learning that we do informally, much of what we ask our learners to learn is subsequently assessed in some way. This might be formative or summative in nature but, one way or another, in order to make an award of any type, evidence of a student's performance is needed. The ability to perform well, or well enough, in an unseen examination is another of those skills that we can teach our learners to do (better). However, we must be careful that in so doing we avoid 'teaching to the test'; something that those teaching in higher education in today's climate fear may be happening more than it should. In the 'commodification' of higher education, there is the perception that students pay their money (or, at least, a proportion of the cost of their degree) and that, as a result, they expect, if not demand, that we ensure that they pass. In the UK at least, the government of the day is keen to ensure that around 50 per cent of those completing their secondary education then go on to do a degree. Whilst within this population there are those who cannot wait to begin the exciting challenge of studying at university, there are naturally those who, for various reasons, are not as well motivated as we might wish.

The significant changes in the higher education sector, and in particular the external pressures from the government which, rightly, needs to assure the taxpayer that their taxes are being spent in the appropriate way, is touched upon in the third article. In 'The locus of power in UK universities: its impact on educational development centres', Laurie Lomas reports that in the UK we are having to teach more and more students (including a greater number from less 'traditional' backgrounds) but with less money per student from the government in order to do so. Many universities in the UK have made organizational changes to their internal structure in order to deal with these external pressures, says the author, and these naturally impact on what decisions are made, how and by whom. These affect, one way or another, the culture of any organization. Lomas reports that universities organize themselves differently according to factors such as age of the institution (some are 800 years old, others 8, and some can count their age only in months), tradition and size. There

are 'traditional' universities, and these have very 'traditional' organizational structures. In these, there is less 'central' power, and academic departments 'make the general values and norms of behaviour abundantly clear', says Lomas. Such values and norms vary from department to department, and there may even be rivalry as each competes for staff, students and financial resources. In contrast, there are universities in the UK that are centrally managed.

Regardless of whether a university is 'traditional' or 'new', changes in the organizational structure and the shift(s) in the locus of power mean that the development, implementation, monitoring and review of learning and teaching strategies in universities has been significantly affected, argues Lomas. Although not made explicit in this article, it is recognized that, for many and varied reasons, educators in higher education are perhaps not as well prepared for the 'different' teaching that is required in order to effectively help this more diverse group of learners. Over the last few years, universities have recognized that educators cannot (or should not) be left to their own devices in their individual departments and that they would benefit from *university-wide* support, advice and resources re teaching provision. There is now no university in the UK that does not have, in one form or another, a 'learning and teaching centre/unit' as part of its central (rather than department/faculty-level) provision. Their size (large, and growing larger) and their perceived importance is such that they play a greater role in the management of the learning and teaching 'business' aspects of universities and is part of what Lomas refers to as the 'centralizing tendency' that characterizes the current state of higher education in the UK. Little if any research has been carried out on these 'learning and teaching centres/units' at 'the centre', says Lomas, and so this article is a welcome one if we are to effectively manage our teaching activity. The research described in the article sheds light on issues such as what the battles are, and where they have to be won, and the importance of leadership. As has long been recognized in industry, the need for a 'champion' is essential, although such individuals are rare, unfortunately.

A degree, these days, is seen as a necessary 'must have' in the workplace today, even for those jobs where, in the past, a degree was considered not necessary. And, with more and more of our students working part-time or even full-time to finance their three- or four-year degree course, finding high levels of motivation, and energy, are ever more difficult when juggling work outside, too. For those with families to support, long distances to travel to the university or whatever, whilst recognising the *need* for study, the burning *desire* to do so is less easily conjured up. Today's students may well not have been in formal education for some years or, if they have, may not be used to formal examinations, whether seen or unseen, done under

the pressure of a particular time period. Even if they have had recent experience, there are few with a natural talent for this acquired skill. As in all things, practice makes perfect, it is said. Many of us running modules or courses provide past papers, which allow our students to look at the format and other such issues but, importantly, allow them to practise writing under exam-type conditions if they so wish. However, practice varies as to whether or not the 'model answers' are provided alongside; some do so but, rightly or wrongly, the majority do not. There are also few educators who, with large class sizes, can and do mark practice attempts. With class sizes of 300 or more becoming commonplace in the UK, marking practice attempts, as well as coursework, is an enormously time-consuming task, even if submitted and returned electronically.

Publishers of textbooks have, however, recognised the need to offer support over and above the mere publication of what they believe is an excellent textbook. Many have websites dedicated to helping students with learning more generally (learning how to learn), and also with particular discipline-specific issues. Given that many of our students are today highly computer literate, and becoming increasingly so, such a resource is to be welcomed, as it provides not only a resource for our students but also saves us time and effort in producing supplementary material. Scott Paul Johnson and Andrzej Huczynski, authors of the fourth article, entitled 'Textbook publishers' website objective question banks: does their use improve students' examination performance?', say that publishers these days consider having a textbook website an essential and that the major publishing companies have invested much time, effort and money into developing such learning resources. We are increasingly using virtual learning environments (VLEs) such as WebCT or Blackboard as the means of providing study guides, the uploading of PowerPoint slides and the like, as well as for promoting discussion between learners themselves via discussion boards. Indeed, it is somewhat surprising to me that, in some of the literature in the field of education, some are still discussing whether or not we should use the technology to support learning. In my view, that argument was made long ago; there is hardly a higher education institution in the UK which does not use a VLE! Whilst some, particularly those with little experience or technical knowledge (or support for the technology) may use only the basic features, there are many, and their number increases daily, who use all the sophisticated features available. Students seem to not only like it but, importantly, see it as something which, if not provided, is regarded as not meeting the standards that they expect. So, I here make the plea that it is time to cease discussing the advantages and disadvantages of computer-supported learning environments and instead just focus on how, precisely, we might use them effectively.

In using technology to support our learners, we are increasingly likely to include, as part of this, reference to the textbook publisher's website. VLEs have the facility to allow us to develop what are called 'question banks'. Such question banks allow us to construct a number of questions, varying in range and type, which can be used by our learners in order to provide practice in the writing of examination papers for those who choose to do so. As with past papers, whether or not the 'model answers' are provided at some point is a matter for the institution to decide. Most, if not all, modules/courses now have one 'core' textbook that students must purchase; more is unusual, although students may well be asked to read other material elsewhere, for which they either do not have to pay at all (it is available via the internet, for example) or which is available for minimal cost (a study pack, perhaps).

However, as Scott Paul Johnson and Andrzej Huczynski's article demonstrates, we do not know whether our students actually use the question bank associated with the core text we ask them to buy/use. Or, if they do, whether so doing improves their subsequent performance in the examination. Naturally enough, there may be differences in terms of gender, that is, it may be that males are more likely to use such question banks. Or, perhaps, their performance might instead be related to how often they used these banks. However, as the authors rightly note, this must be viewed in light of their grades upon entry to university. Analysis of the results from their sample size of 239 respondents revealed that the question banks and the feedback provided were much valued by students. For those worried that the use of question banks is a step in the wrong direction in that they are 'teaching to the test', the results showed that the performance of these students in the subsequent examination was not significantly improved. However, as with all results, there is no simple answer as to whether or not we should use such question banks (more) given that the data suggest that this is more complex than it seems on the surface.

One of the complexities surrounding how we learn concerns the issue of motivation. As discussed earlier, whilst we may recognise that we *need* to do x, whether or not we *want* to is but one of the issues complicating our understanding of its role in learning. There seems to be a belief that our students should be sitting on the edges of their seats, excitedly awaiting the next learning challenge, eager to ask questions in the quest for knowledge. However, whilst some things that we learn are indeed exciting, this is not to say that we necessarily enjoy *every* element of it! Some of us may, for example, really enjoy cooking. We may find nothing more rewarding than being in the kitchen, preparing some wonderful food for friends or family. However, I suspect that such cooks do not gain such satisfaction from, say, washing up afterwards or cleaning up after someone has spilled red wine

all over the carpet. We recognise such tasks as necessary but, for most, deadly dull and boring. We do them because we understand that they are part and parcel of the task, but we instead focus on the bigger picture and thus the more positive aspects/the rewards. It is no different for our learners. There are some elements of study that are just not motivating at all. Or, which motivate some, but not others. However, just as with cooking, that we lack the motivation and/or *want* to do them does not necessarily negatively affect our *performance*. We are no less 'successful' at washing up, and the washing up is not done badly, just because we cannot find the energy or enthusiasm for it!

However, how we deal with the dull and uninteresting tasks, what keeps us going when things get tough and how *much* drive, enthusiasm and motivation we need in order to achieve our goals are in part dependent on how we deal with what life throws at us. For many of our students, the transition from secondary to higher education comes at a time when there is a lot to deal with on the personal front. Such students may be living away from home for the first time, dealing with finances for the first time and, if they are studying far from their family, may not have the support of family and friends during this perhaps anxious and uncertain period. How students do, or do not, cope with the experience of beginning their degree course is the subject of the fifth and final article, entitled 'Gender differences in coping strategies of undergraduate students and their impact on self esteem and attainment'. In this, Julia Lawrence et al. look at how we, as humans, cope. Coping is described as our ability to manage specific external and/or internal demands and is naturally dependent on our own individual makeup in this regard; some are better 'copers' than others when faced with exactly the same problem.

Models of coping, they report, comprise two distinct categories: those which are problem-focused and those which are emotion-focused. Strategies such as problem-solving, planning and effort are involved when we attempt to deal with a problem, and we focus on the successful completion of the task. However, we need to control our emotional arousal and distress in order to ensure that we can remain focused on the task; if not, our performance and/or attainment may suffer. As individuals we each have our own coping makeup which is in part determined by our genetic predisposition and in part by previous experiences. Some are amenable to change, and others may not be. Coping, say Julia Lawrence et al., is also linked to self-esteem and, in addition to impacting on our general wellbeing, may influence how well or otherwise we perform in any given task. Given the topic, it is not surprising perhaps that males and females adopt different strategies of/for coping.

The first year of study is a crucial time; nearly 70% of students who leave

their studies before completion drop out (leave) during the first year, very often during the first term. Over the last few years, this has been recognised and we have been tasked to address this by, for example, providing appropriate targeted support during the early weeks and months. Julia Lawrence et al. claim that we know little about the nature and type of the coping strategies that our learners use, and that there is a need to better understand the link between self-esteem and attainment. And, given that gender is a factor here, to explore these issues in light of how female and male learners deal with their experiences. Results from their study of 160 first-year students was perhaps surprising in that there was no relationship between the coping strategies used and their subsequent attainment. However, and consistent with previous research, their findings revealed significant differences between males and females in terms of self-esteem, the ability to detach from the emotion of a situation and how emotions are either 'bottled up' or given an outlet. They conclude their article with some useful pointers as to what we might do during these early weeks and months of study in order to both recognise how our learners are coping (or not) and the support mechanisms that we might employ. Importantly, and rightly in my view, they say that we need to embed these support mechanisms into our 'normal' classroom activity. That is, that we provide such support to *all* learners, as part of our support for helping them learn how to learn in the higher education context. For many of us, such support mechanisms exist as part of our provision, but they are only brought into play when things 'go wrong'. It is by then perhaps too late.