Forum

Learning and Teaching Committee

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Research-led teaching: in pursuit of excellence

Embedding research in the curriculum

Student engagement in research practice

Innovations in research-led teaching

Contents

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Editorial

Dear Reader

This 44th edition of *Forum* Magazine marks the end of the academic year of 2017/2018 and reflects the dynamic discussions at the University of York Annual Learning and Teaching Conference. This year's conference focused on exploring 'Research-Led Teaching: in pursuit of excellence' and this pursuit of excellence is mirrored in the recent attainment of TEF gold status for the University of York. However, beyond metrics that measure teaching success, is the beating heart of learning embodied by the staff at York who work hard to inspire and enrich the imaginations and skill sets of undergraduate and postgraduate students.

This summer magazine edition seeks to promote and celebrate the excellent work being accomplished across the University to incorporate research into teaching practice from a variety of professional and academic backgrounds. It is delightful to have our lead article written by Angela Brew, from Macquarie University, Sydney in Australia on 'Ten easy ways to put research and inquiry into courses'. As our international keynote speaker at the Learning and Teaching Conference this year, she offers fresh ideas for improving research-led teaching.

This magazine also marks the end of the illustrious reign of Phil Lightfoot (Physics) as the Chair of Learning and Teaching Forum. He has been a capable and inspirational leader with a passion for the development of teaching and learning at York. Phil, we salute you and offer you our thanks for your dedication to the Learning and Teaching Forum.

I hope all *Forum* readers have had a restful and productive summer.

Ruth Penfold-Mounce (Sociology)
Editor

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10 easy ways to put research and inquiry into courses

***Angela Brew**, Emeritus Professor at Macquarie University, Sydney, gave the keynote talk at the learning and teaching conference. Here, she offers a host of ideas on introducing research practice into the curriculum.*[1]

Perhaps you're thinking about engaging your students in some form of research and inquiry but don't know where to begin. For people who haven't thought of courses in this way before, here are some hints about how you can change your modules or parts of your modules to develop students' research skills and competencies. There follow ten simple suggestions to get you going which you can adapt to suit your particular context. Of course, these are not the only ways to engage students in research and inquiry. Sometimes knowing where to start is the difficult bit, particularly for students' early years. The examples here are not new and they are not intended to be exhaustive. But hopefully they will give you some ideas to start with, and will stimulate you to think of other things you can do that are appropriate to your disciplinary context.

10 easy ways

1. Change an assessment to an inquiry
2. Change a laboratory class to guided discovery
3. Engage students in gathering or working with data
4. Turn your unit of study into a conference
5. Arrange for students to interview researchers
6. Invite students and staff to research speed-dating
7. Get students to write an abstract
8. Change essays into academic articles
9. Turn the class into a hypothesis-generating forum
10. Create a competition

1 A version of this article was first published in *Teche, Macquarie University's online Learning and Teaching Newsletter, 2017.*

1 Change an assessment to an inquiry

Students come to university with things that they want to know. Chances are they are studying a particular course with some questions about the subject to which they would like to know the answers. Why not arrange for them to investigate their questions? Even first year students can engage in a simple inquiry of relevance to the subject. So, for example, one biology lecturer I was talking to said that one of his first-year students asked: "Why is a leaf green?" This is a good basis for an internet search. You could set the assignment up so that students have to write a report distinguishing "good evidence" and "poor evidence". Alternatively, the students could conduct a critical bibliographical review. Each student could investigate their own question.

Importantly, you need to frame the assessment as an inquiry and make it clear to the students what they are doing in terms of research: eg learning to distinguish good and poor evidence; writing critically; carrying out a bibliographical search, etc. Make sure you link this explicitly to what researchers do, so that students know why they are being asked to engage in this activity.

EXAMPLES

First year pharmacy students individually develop an interview schedule to be used to interview a friend or relative who has experienced a significant 'health event' in their life. Material from the lectures, a book of readings and tutorial class discussions are used to formulate the interview schedule (University of Sydney, Australia).

Students are presented with an article from a popular magazine such as *New Scientist*. They research the original article on which this popularised version is based and write a report on the way the media has presented the research. They may contact the original author(s) to explore their perceptions of how their research has been represented by the media (University of Plymouth, UK).

First year students of classical mythology carry out research on a god or goddess and write a Homeric Hymn to it. They are required to research what a Homeric Hymn is and they have to demonstrate the results of their research both of ideas about the god or goddess and about the nature of the Homeric Hymn in the Hymn that they write. Appropriate footnotes have to be included (University of Sydney, Australia).

2 Change a laboratory class to guided discovery

In many science laboratory classes, students follow a set procedure to achieve a known outcome. But what if the outcome is known, but the stages required to achieve that outcome are unknown? Perhaps a problem is set and students have a few pieces of equipment and have to work out how to achieve the desired outcome. There may be an initial discussion but the instructions may ask questions rather than providing procedures. Of course you will need to ensure that what the students do is safe. It won't do to have students mixing volatile chemicals that are likely to explode!

Changing a laboratory class into a guided inquiry session is not a new idea. There is a great deal of literature in the scientific community indicating why change is needed for the twenty-first century scientist.

EXAMPLES

As a development of a traditional laboratory class, each first-year biology student is given a Petri dish and they each collect the fungal spores in the atmosphere in their back yards. There are 1000 students in the class living all over the city. Students bring the samples back to the lab, grow them and write a report on their findings. The results are mapped onto a geophysical map generating new knowledge for publication in scientific journals (University of Sydney, Australia).

In a first year undergraduate computer science course, students engage in the design of computer software which requires simulation of a complex system, for example planning and managing checkouts in a supermarket, managing a biodiversity survey, managing information for an entertainment advisor, managing the data for a school timetable or managing a product inventory for a computer vendor. Students begin by working on a simple problem and learn how to work in teams. They then, in groups, research their chosen topic and the computer code needed to develop the simulation. Each simulation requires that students collaboratively write a small core of essential code and then develop it so that the simulation can cope with ever more complex situations (University of Sydney, Australia).

3 Engage students in gathering or working with data

Data is all around us. In practically any subject there are numerous ways in which students can engage in collecting and working with data. Perhaps you have a research project on the go that requires more people to collect more data, to observe a phenomenon, to record samples, to examine a particular species in a given geographical area, or to find out how people in society think about a particular issue. The possibilities are endless. Data can also be gathered through internet searches of course.

On the other hand, there is the use of existing data sources. From linguistics to accountancy, students can work in analysing data to understand particular phenomena. Discussions of how to analyse the data collected or worked on can help students to understand and critically evaluate theories.

Remember that if students help you to collect data that you subsequently publish, you must acknowledge their contributions in your published work. Also remember that collecting some forms of data may need ethical approval.

EXAMPLES

First year pharmacy students investigate the ways in which different pharmacist shops are laid out. They pool their responses and in doing so learn about important aspects associated with the practice of pharmacy (University of Sydney, Australia).

Pharmacy students examine research evidence from a research project, where a mystery shopper posed as a member of the public with a particular ailment and went into a number of pharmacies, to examine how the pharmacist explained the particular medication (University of Otago, New Zealand).

Students in an early childhood module are all asked to take photos of "Childhood" that they notice around them, in the street, on noticeboards, wherever they happen to be. The students take hundreds of photos and then display them all together. The module then consists of students analyzing this data, utilising the different theories of childhood which are the focus of what they have to learn (University of Northumbria, UK).

4 Turn your unit of study into a conference

A conference or showcase is a great way for students to demonstrate what they have learnt. So why not turn the whole course into a conference process? Students can develop useful organisational skills and skills of critical judgement by being involved with academics and others in its organisation. For example, they could decide and organise location, timing, catering and even what the program is going to look like. How much guidance they are given in this will depend on the level of the students, the subject and the amount of structure and guidance that you consider is needed.

As a variation on this idea, depending on the subject, the endpoint might be an exhibition or a series of exhibits.

EXAMPLES

In a unit about new multimedia, students choose a topic they wish to research and write an abstract. They receive feedback and approval from the lecturer. They carry out the research and write a report. They present it at a conference, organised by the students, towards the end of the semester. The quality of the reports is used to decide which students will give spoken presentations at the conference. Other students give poster presentations. The exam is focused on topics their peers researched and which they heard about in the conference in order to ensure their participation is also a useful learning experience. Some employers and other guests are invited to the conference (University of Southampton, UK).

5 Arrange for students to interview researchers

If you're in a large department with a breadth of research covered, a great way to get the students interested in and knowledgeable about the range of subjects in the discipline is to provide a strategy for students to interview members of staff. Research conducted on students' knowledge of research activity in their university shows that undergraduates are generally ignorant of the research being done in their own institution and that they are often unaware that any research is taking place at all.

Academics appreciate talking about their research, and having a small group of people asking intelligent questions about it is bound to put smiles on a lot of faces. It's important that students prepare for their meetings by reading some of the work of the individual staff member that they are going to interview and devising some interesting questions. They could research the articles of the chosen member of staff in their own time, with class time used to discuss questions, or some questions could be prepared for them. But the important point is that students should show some basic knowledge and ask intelligent questions. It's a good idea for students to be in small groups when they interview the member of staff in order to avoid awkward moments in the encounter. This also gives students a chance to experience working in teams.

You should provide a way for students to prepare a report on what they have found and to share this with their peers. This is a great way for the class to get a feel for the subject that they are about to study overall and is a useful inquiry process early in their course.

EXAMPLES

Students in teams of five first read three research papers by a staff member and then, when they have discussed and agreed a series of questions, interview the staff member about their research. Each student individually writes a report on what they have found (University College London, UK).

6 Invite students and staff to research speed-dating

With the support of the whole department, you can extend the idea of student interviews so that all can participate in a sort of 'speed-dating' lunch. To ensure that students get the most out of the experience, you could

ask them to focus on particular questions or you could focus the event around, for example, future research developments. There are endless possibilities.

Depending on the venue and the numbers of students and staff, the students could rotate around the tables or the students could stay put and the staff could rotate around.

EXAMPLES

All students in the cohort are invited to lunch with all academics in the department. Students get their lunch and sit down in groups of two or three. Academics join their table one at a time and students ask the academic a series of questions about their research. A bell rings and the academics rotate around the groups (University of Queensland, Australia).

7 Get students to write an abstract

Students frequently write essays or reports and they are often involved in reading academic papers. But they often don't make the connections. To teach students to write coherent, cogent essays and articles, one way to start is to

encourage them to write good abstracts. Abstract writing is an important skill for academics to learn, but the ability to precis an argument is essential in any profession students undertake.

You could preface the activity with a class session where students brainstorm what they think are the qualities of a good abstract.

EXAMPLES

> Students are given a paper which the tutor has written, but from which all references to it (journal name, volume, page numbers, author name) have been deleted. The students then write an abstract for the paper. The exercise is used in tutorials to develop the skills of writing, critical analysis, summarising information and research design and planning (University of Plymouth, UK).

> In a development of this approach, the lecturer collects the abstracts and puts them in a common format and chooses the best four or five which are then put with the original abstract. Students vote for 'best abstract'. Then the lecturer reveals which is their original abstract, often to the surprise of the students! (Brigham Young University, USA).

8 Change essays into academic articles

Essays are the very best way to teach students how to write in an academic way. They are excellent training for writing academic articles. But it is clear from research on students' awareness of research that they often don't make the connection between what they are doing in writing an essay and what academics do when they do research.

The simplest way to change students' views about research is to frame the essay as a research activity. However, since students don't always make the connection, it's important to explicitly refer to the similarity of essay writing and academic article writing, and to talk about issues you have had when your articles have been reviewed. You could change the assignments students have to complete from "Essay on…" to "Academic research article on…". Or you could break up an essay into component parts for progressive assignments, eg write an abstract; write a conclusion to an article. You could give students an article from which the abstract or conclusion has been omitted and ask them to write an abstract (see Number 7 above). But remember always to make the link with research articles explicit in your instructions and feedback.

9 Turn the class into a hypothesis-generating forum

The key to good research is having good questions or good hypotheses. In some subjects finding good questions or hypotheses is a huge challenge. It is also something with which many students struggle, particularly when they have to find their own essay title or when, as a doctoral student, they are faced with the challenge of narrowing down their PhD topic. Being able to break a topic down into its component parts requires practice.

In class time it's a good idea to begin with a discussion about what constitutes a good question. An example of how a question can be broken down into its component parts is very useful in this context because often the questions which students ask are much too general. If students have chosen an essay topic, for example, they could be asked to write down, say, five titles for essays they could write on that topic. This serves to show the need for breaking down questions, hypotheses, problems etc. into their component parts.

EXAMPLES

> In class time, education students are invited to generate as many questions as they can about how to improve the learning of their students. They put each of the questions on a post-it note and put them on the wall. Then, when all the questions have been exhausted, the class silently groups the questions according to type. Duplicate questions may be removed at this point. Further questions may be added. Headings may be added then or later depending on the students. This is used as a basis for forming groups of students interested in researching similar areas (University of Sydney, Australia).

10 Create a competition

Numerous national and international student competitions exist particularly in the Sciences, Mathematics and Engineering subjects and you may want to investigate what is available for your area. But you can also create a mini competition amongst your own students that will cause them to investigate a particular idea or formula. This is particularly useful where the work results in a practical demonstration that can be judged. For example, what about asking students to come up with the best solution to a specified environmental problem? You can also use poster presentations or short presentations such as are used for 'three-minute thesis' competitions if practical demonstrations are not possible, or if the competition is based on the best design rather than the implementation of it.

EXAMPLES

> Second year engineering students research how to move a ten kilogram block of ice through water powered only by candles. They then build a device to do this. A competition is held on a nearby lake. The winning device not only moves the ice furthest, it does so at least cost because cost is important in engineering design (University of Sydney, Australia).

> An industrial organisation sets a task for students: to design a skating robot that can skate faster than the fastest speed skaters. The fastest robot is chosen for the first stage of manufacture (University of Calgary, Canada).

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Using a visual method of drawing in teaching and learning

***Sudthasiri Siriviriyakul**, from the York Management School,* *discusses how the research technique of participant-produced drawing can be applied to the classroom context in order to better student engagement.*

Introduction

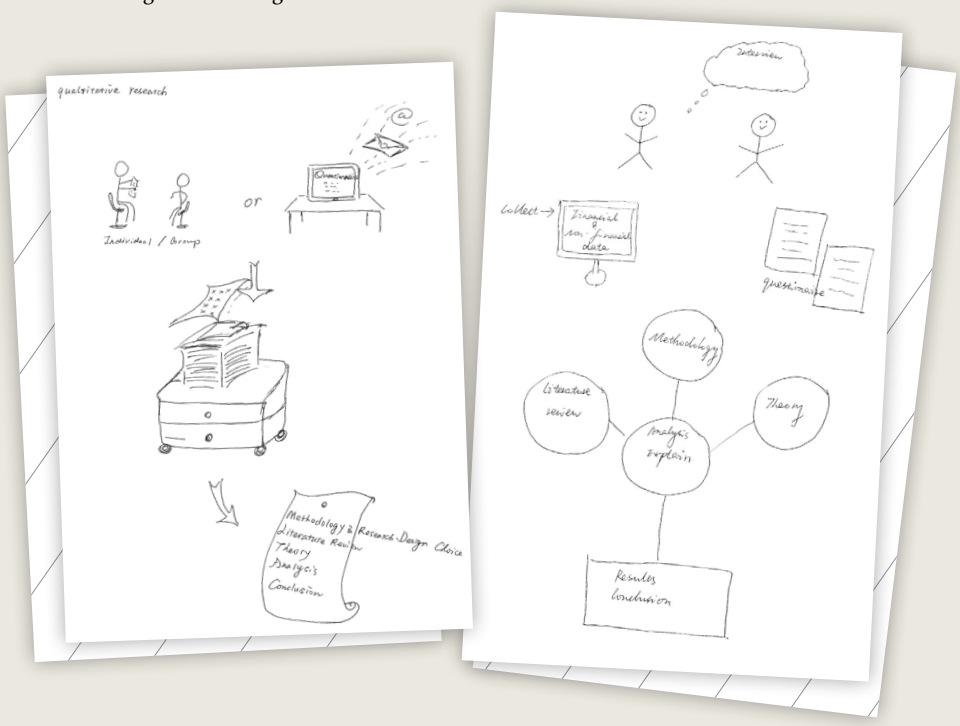
A participant-produced drawing is normally used in qualitative research as part of the interview where participants are asked to draw pictures which express their thoughts, feelings, emotions, or experiences. Then, participants discuss their drawings afterwards with the researcher or in a group (Vince and Broussine, 1996; Kearney and Hyle, 2004; Bagnoli, 2009; Ward and Shortt, 2012). This research technique of participant-produced drawing helps to uncover participants' feelings and thoughts that are not easily described by words alone (Kearney and Hyle, 2004), acts as a 'catalyst' to facilitate richer conversations with more honest answers (Vince and Broussine, 1996: 9), gives the opportunity for participants to reflect and visualise something in their own ways (Bagnoli, 2009), and thus empowers and values active participation from them (Pain, 2012). All of these advantages of the participant-produced drawing mean it lends itself to being implemented in the learning and teaching context for engaging students. In this article, I discuss how this technique helped me to engage students in postgraduate seminar sessions of the Qualitative Research Methods module in the Management School.

Procedures

Bryans and Mavin (2006) suggest the use of a pictorial representation in a research method class to help uncover the unconscious and emotional elements of how students conceptualise research processes and a researcher's role in the research. Based on Bryans and Mavin's (2006) suggestion, the following procedures were carried out, but adapted from Bryans and Mavin's (2006) methods in that the drawing activity here was performed twice to evaluate how students have learned throughout the course. In the first of my seminar sessions, students were asked to draw on A4-sized paper with the following instruction: "Please draw anything that best depicts or represents 'qualitative research' in your opinion." Students were given five to ten minutes to draw individually. Then, they were asked to discuss their drawings with their group members (Bryans and Mavin, 2006).

In the final seminar session (ten weeks later), students also undertook this drawing activity again with the same instruction, plus a further requirement to write three keywords for their pictures on the back of the paper. Students then discussed their drawings and reflected on how their views and perceptions of 'qualitative research' were similar to, or had changed from, the first week.

"I already wrote the paper. That's why it's so hard to get the right data."



Figures 1 and 2. *Relatedness of contents and mind-mapping representation*

Impact on student engagement

Applying the technique of participant-produced drawing to the classroom context can help to promote student engagement in several ways.

REFLECTION, SYNTHESIS, AND RELATION

Firstly, a visual method of drawing gave students the opportunity to pause and reflect on the concepts they learned, in the same way that this technique encourages research participants to think holistically about the topic in the study and reflect on this in their drawings (Bagnoli, 2009). In their reflection, students tended to synthesise different concepts together, for example in a form of mind-mapping diagram or

Figure 3. *Relation to personal experience*

by linking different pictures with arrows to represent the connections between them.

Some students also drew pictures that were related to their personal experiences.

By encouraging students to reflect, to synthesise different pieces of knowledge together, and to relate ideas to personal experiences instead of merely memorising and reproducing facts and contents, the drawing technique helped to create a deeper approach to learning (Entwistle, 1998).

NON-VERBAL CONCEPTUALISATION AND EXPRESSION

Secondly, as with the ability to help investigate and elicit research participants' experiences, emotions, or feelings (Bagnoli, 2009; Pain, 2012; Ward and Shortt, 2012), the participant-produced drawing technique also enabled students to better conceptualise, interpret, and express abstract, complicated, or tacit knowledge and conceptions. For

> *"Applying the technique of participant-produced drawing to the classroom context can help to promote student engagement."*

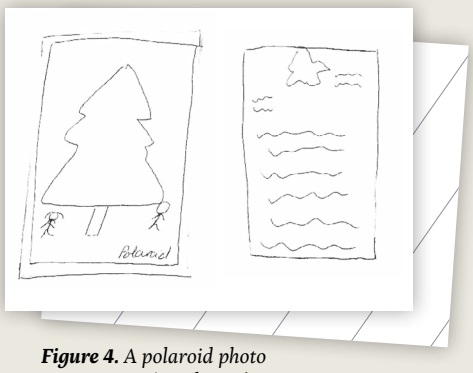


Figure 4. *A polaroid photo representing 'word view'*

example, one student drew a picture of a polaroid photo. They later explained that it metaphorically represented the 'world view' or how we see the world, which was what the student associated with qualitative research.

Thus, the process of drawing in this example enabled this student to access and conceptualise complex and abstract ideas in the module, such as the research philosophy, and to illustrate it in a simple, easy-to-understand approach. This resonates with Taylor and Ladkin's (2009) argument that art-based methods can help to apprehend and illustrate the essence of a concept or tacit knowledge in a way that more traditional approaches cannot. Moreover, by using pictures instead of only words to represent complicated concepts, this visual method also helped to transcend potential language barriers for international students (Vita, 2001).

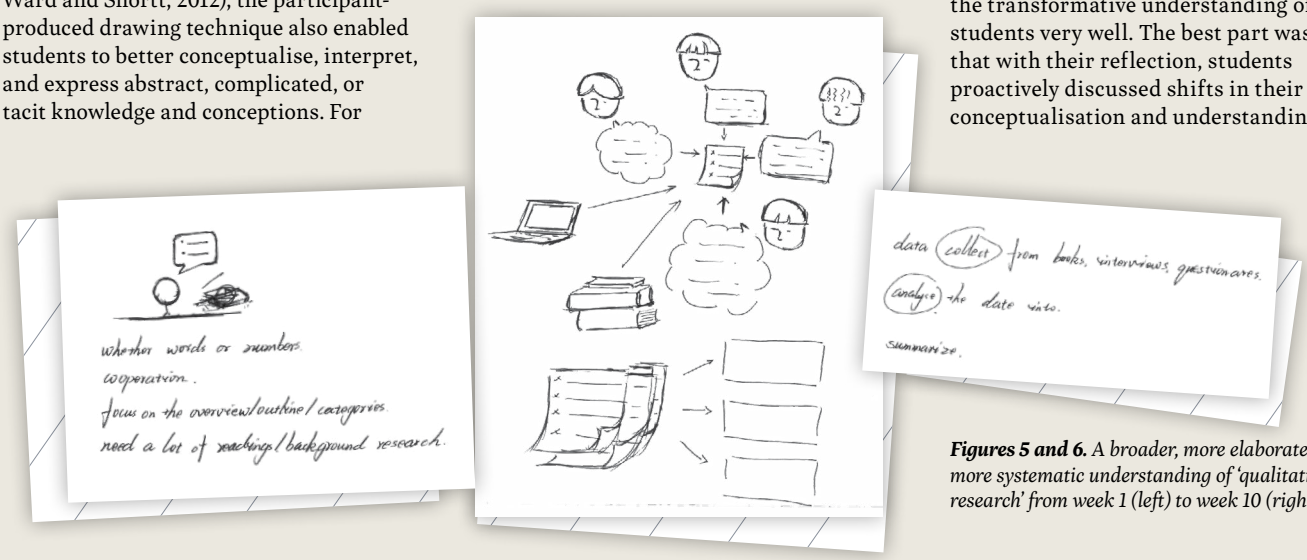
STIMULATING IDEAS IN GROUP DISCUSSIONS

Thirdly, participant-produced drawing facilitated further discussions for students. The drawings acted as props and sources of ideas to stimulate group discussions among students where they could describe the meanings of their drawings, comment, discuss, and compare their drawings with each other in a group. This is in accordance with the use of this technique in a research context where the participant-produced drawing is intended to act as 'an elicitor of information' in the interview (Kearney and Hyle, 2004: 377).

EVALUATING TRANSFORMATIVE UNDERSTANDING

Lastly, by employing the participant-produced drawing method at two points of time, the beginning and ending of the course, it helped to evaluate to what extent students had learned throughout the module's duration.

In fact, using a visual method of drawing in the evaluation of teaching and learning is not new. Although it seems to be a non-traditional method, certain scholars have employed and suggested the use of this approach in course evaluation (Ward and Shortt, 2012) and to assess the transformation of students' mental frames (Munoz C., Mosey and Blinks, 2011). From my experience, I found that the participant-produced drawing method could capture the transformative understanding of students very well. The best part was that with their reflection, students proactively discussed shifts in their conceptualisation and understanding



Figures 5 and 6. *A broader, more elaborate, and more systematic understanding of 'qualitative research' from week 1 (left) to week 10 (right)*

from their own perspective; they discovered by themselves how the course had added to their own mental visualisation, conceptualisation, or understanding of the subject matter. This visual method technique may thus provide another useful way to evaluate the transformative understanding of subject 'threshold concepts' in which there is 'a transformed internal view of subject matter, subject landscape, or even world view' (Meyer and Land, 2003: 1).

Conclusion

In the same way as a participant-produced drawing can help to access and investigate research participants' inner thoughts, feelings, emotions, and experiences (Kearney and Hyle, 2004; Bagnoli, 2009; Pain, 2012; Ward and Shortt, 2012), this technique can also help to understand students' mental frames, their conceptualisation and interpretation of the module contents. Moreover, it encourages students themselves to reflect, create, relate, express, and discuss ideas in a non-traditional way. All of these points suggest the benefit of using participant-produced drawing in learning and teaching contexts to improve student engagement. Finally, just like in the research context where participants should feel safe that they will not be judged on their artistic ability, students should also be reminded that they will not be judged on their drawing in order to ultimately create a safe, respectful, creative, and engaging learning environment for all.

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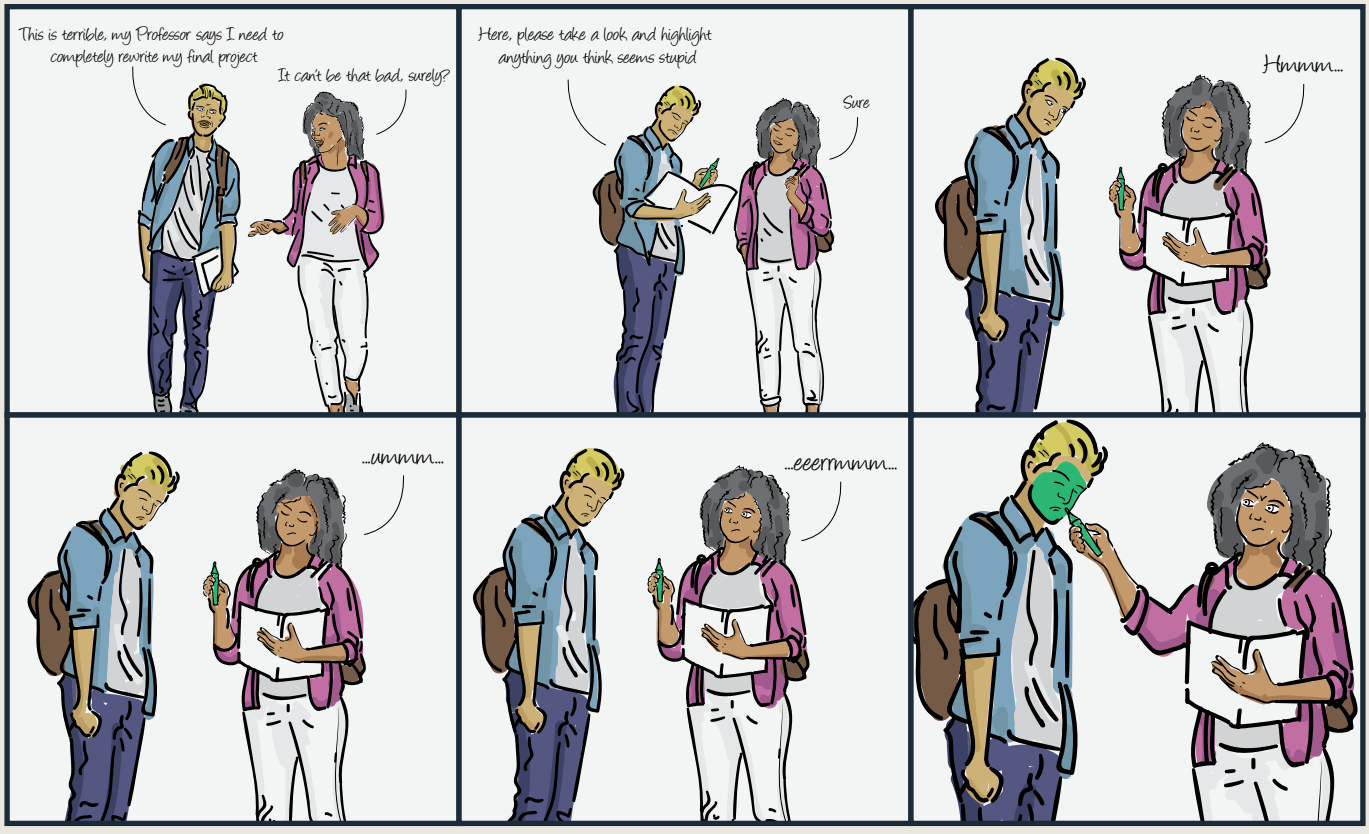


Illustration by **Jon Starkey | Design Solutions**

Embracing confusion as a way to develop student engagement

***Debbie Maxwell**, from the department of Theatre, Film and Television at the University of York,* *reflects on the experience of teaching an emerging sub-discipline of design where even the disciplinary boundaries and core definitions are up for debate.*

Students creating and discussing critical design concepts using a framework.

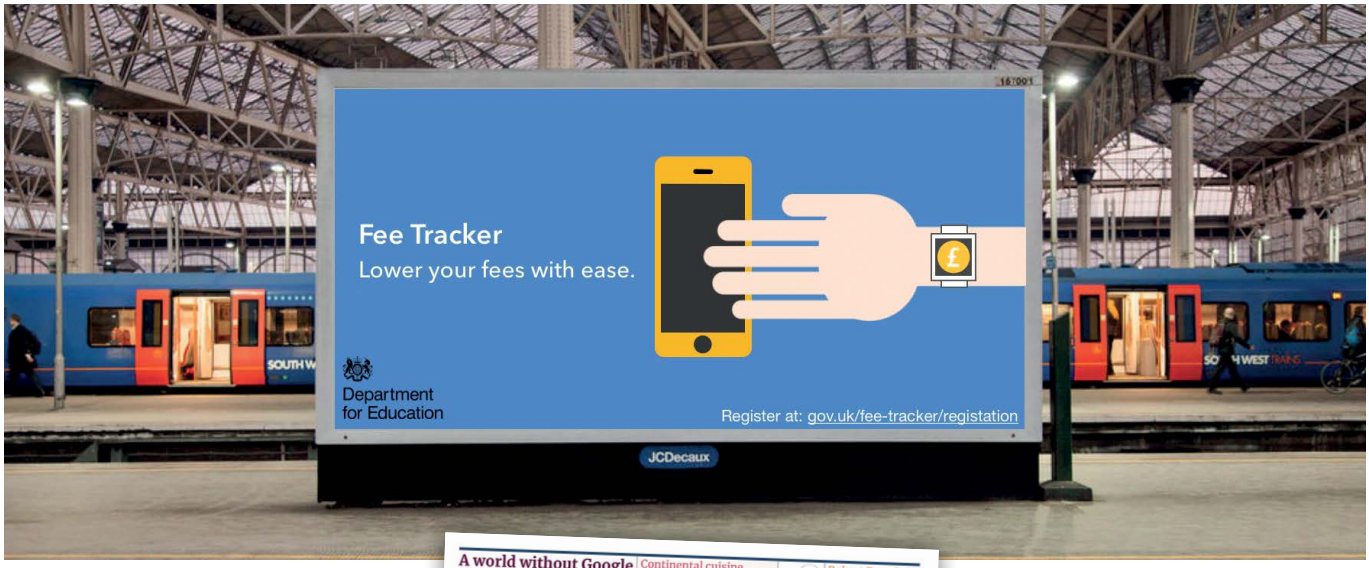
The emerging fields of Critical Design, Design Fictions, and Speculative Design (situated largely in the spaces between design and art) have grown in prominence over the last ten years in response to capitalist approaches to product design, and critique rather than affirm our current societal practices (eg Dunne and Raby, 2013). Critical Design is often used as a tool for provocation, casting designs forward into possible, often dystopian, futures. It has been applied in community co-design contexts (including in my own research, eg Edwards *et al.*, 2016), as well as provocative artefacts and think pieces. However, the newness of the field and its multidisciplinary origins means that not only is it moving fast, but it is being pulled in several directions at once. This state of flux and uncertainty is arguably mirrored by the environment and employment spaces in which our graduates increasingly find themselves.

The Critical Design module (an optional ten-credit final year module offered since 2016-17 in the BSc Interactive Media) seeks to engage students with a radically different approach to design than that which they have previously encountered in the degree. Students are required to carefully consider the implications of design and its role in society, and to explore and begin to understand complex, uncertain problem spaces that are important to them and are important in their own right (eg climate change, the NHS, government surveillance, and student fees). The primary challenge is to enable students to engage meaningfully with a new field, the boundaries and form of which are shifting, and to develop their own nuanced understanding of what critical design is, moving beyond an initial state of confusion and ambiguity.

> *"[after] nearly every single session we all talked for at least 45 minutes to an hour about what the definition of critical design was and nobody agreed."*

The majority of taught sessions are held in a design studio, where relevant materials (both lecturer- and student-generated content) are put on the walls to create a lasting and shared space for the duration of the term that students can access outwith timetabled sessions. Each classroom session is collaborative and creative (eg through writing, sketching, making, or programming), encouraging practical design skills, where students work together to explore topics. This aids in assessment (which takes the form of a presentation of their critical design prototype and an accompanying report). The cabaret layout of the room removes the traditional "lecturer" stance at the front, and teaching becomes more conversational, with the lecturer acting as facilitator and guide rather than didactic sage. Students respond well to this, engaging fully with creative tasks to push their ideas and understanding forward in unfamiliar territory.

Rather than simply choosing a specific key text or the lecturer's view and presenting these as definitive statements of the field, the lectures and workshops



An example Design Fiction artefact – Billboard mock up of compulsory government enforced wearable device for students to manage and reduce (or increase) their student fees based on attendance and performance.

openly acknowledge and cover multiple (often conflicting) views and definitions by leading scholars. In addition, two external guest researchers (with very different approaches) are invited to give lectures about their work. All this gives students permission to be confused:

> *"It took me at least four weeks until I actually grasped what critical design was, and I wasn't even sure then if I had understood it properly [...] You [lecturer] made it clear that it wasn't a scientifically defined topic; there wasn't one stringently right definition. That helped with me not being sure. It made it ok to not be sure." Student comment (2017-18).*

D'Mello *et al.*. (2014) suggest that intentionally making students perplexed can encourage deep learning and certainly in this instance the learning extended beyond the classroom, challenging students, until they reached their own understanding. Students met up after class and discussed the material: "[after] nearly every single session we all talked for at least 45 minutes to an hour about what the definition of critical design was and nobody agreed. [...] The underlying definitions were kind of similar, but the way that they were worded – to make it make sense to themselves – was very different." Student comment (2017–18).

Critical design works are intentionally intriguing and provocative, spanning wide ranging issues, and are fundamentally *designed for debate*, not function. For instance, Dunne & Raby's Teddy Bear Blood Bag radio (Dunne and Raby, 2013) proposes the harvesting of pets' blood as a power source in a shift away from fossil fuels, while the Solaje euthanasia watch (Tsekleves *et al.*, 2015) challenges


A world without Google
The app alternatives that you wish you knew sooner
By Jon Chen
Continental cuisine without the continent
Marcus Round
Robert Donsfield
How Kemp is the key to electoral reform
theguardian
Attenborough death revealed as details of new BBC crisis emerge
BBC presenter may have been dead for at least a decade
Heads knowingly withheld truth to retain viewership
OFCOM to launch investigation after PM raises concerns
Forsyth key figure amongst binary replication deception

An example Design Fiction artefact – A future post-Brexit Guardian front page with leading article on digital replication and the revelation that beloved presenter David Attenborough may have been digitally reproduced (and medically deceased) for over a decade. The student's "company" and "solution" is E-sense, and is advertised at the bottom right of the layout.

the lack of control that older people experience towards the end of their life. As a teaching topic, therefore, it is ideally suited for the encouragement of debate and discussion, initially evoking horror or fascination before drilling down to the intents behind each design. The students quickly move beyond this, however, to reflect on the abstract core concepts and apply their understanding and technical skills in the creation of their own pieces of critical design. The module overall enables students to develop their own reflective practice, a skill that will be invaluable in their future careers. Teaching undergraduate students complex, fluid research topics can spark their creativity and engagement, pushing them beyond any work they have previously achieved.

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Empowering to own their

***Samantha Pugh**, of the Leeds Institute for Teaching Excellence, University of Leeds,* *discusses how educators can successfully involve students in creating their own learning in a meaningful way.*

Student owned learning is a pedagogy that involves placing students in direct control of their learning, but within a disciplinary academic framework. The approach enables students to learn deeply within the context of their discipline, but perhaps more significantly to effectively develop the higher-order capabilities deemed essential for the workplace and further study.

The benefits of student owned learning

Through this approach, students will have a sense of the work or activity belonging to them. Ownership is a form of empowerment and this can generate intrinsic motivation. Herzberg's (1966) theory of motivation states that people are motivated by factors such as ownership, responsibility and recognition – intrinsic factors – rather than external factors such as financial reward – or perhaps in the case of students – high grades. Intrinsically motivated students are what we all dream of! Intrinsic motivation to learn engenders a love of learning; a desire to achieve successful outcomes for their own satisfaction rather than as a means to an end such as achieving a high mark.

Through Student owned learning, students are provided with the opportunity to create work that they can be proud of. This has long been the case in creative disciplines where the construction of portfolios of work is relatively commonplace, but I have been concerned with how this type of achievement can be accomplished in areas such as my own discipline of the Physical Sciences (and perhaps STEM more widely) where this has not always been the case.

As well as the intrinsic motivation generated by something tangible that students can be proud of, there is also a practical benefit in that students will have something significant that they can talk about in an interview. You can't do that with an exam, no matter how well you have done in it!

Student owned learning in action

Student owned learning can be interpreted in many different ways, and, as already eluded to, will have disciplinary nuances. I would like to consider different ways that student owned learning can be implemented, both within the curriculum and through specific co-curricular activities.

I focus here on my own experiences of successfully implementing Student owned learning in the STEM disciplines and conclude by offering practical advice and guidance for those wishing to explore how their learning activities may become more 'student owned.' However, there are also examples of this approach from Arts and Social Sciences, where students may work with a business or third sector organisation, such as a charity, school or museum.

Within the curriculum

Opportunities for student owned learning have to fit within the whole approach to programme design. Here are two examples, from Chemistry and Physics within my own institution, although similar models exist elsewhere.

Chemistry has developed a suite of modules that take a student-owned learning approach whilst simultaneously addressing commercial awareness among students.

First year students are introduced to student owned learning through a careers module. As well as developing their CVs, they also undertake a group activity where they select a 'chemical sector' SME (small and medium-sized enterprises) and enact the role of employees, making decisions on the value of opportunities that are presented to the business through an inbox exercise. This culminates in a presentation of their chosen opportunity to their 'line manager' (the module leader). The sector-specific nature of the exercise, combined with the students being empowered to make decisions that they have to justify, provides a sense of ownership. In their second year, students can take an enterprise module, 'Chemistry: Idea to Market', where they are given a product development brief (co-written with businesses) and asked to develop the product ready for launch.

The module culminates in a 'Dragon's Den' style pitch and a portfolio of work. The open-ended nature of the enquiry is student owned learning in action, and provides a rich learning experience for students to develop skills that they wouldn't develop in a conventional module. In their third year, students can continue their 'commercial development' through the 'Chemistry: Making an Impact' module: an entrepreneurship module that sees students taking a piece of scientific research with commercial potential and developing a business case. The students also give a 'pitch to investors' at the end of the module. These modules give

students learning

students the opportunity to go way beyond their technical knowledge, and use their creativity to develop a product that they can really own and be proud of. One example of feedback from a student was: *"At a recent job interview, the Chemistry: Idea to Market module was a really great example… where we had really taken ownership of a project."*

The Physics approach to student owned learning is through a group industrial project (GrIP). Groups of students are paired with an industrial sponsor who provides a project brief with a set of deliverables that the students have to negotiate with the company. There is a strong focus on the process of developing the project and learning from the experience. The authentic nature of the task means that the students are highly motivated; rather than chasing marks, they are equally as concerned with impressing a potential future employer, and providing a project report that they can be proud to put their names to. Former students have stated that the module was of direct benefit when job seeking, as it gave them something to talk about in interviews. As one student said, *"I can firmly say that [GrIP] has been one of my most rewarding projects in university as I have learnt many skills which I can duplicate in many areas of my life."*

In all cases, the modules conclude with a reflective essay on the students' experience of the module. An important aspect of the experience is ensuring that students reflect on their development during the placement, and perhaps more importantly, are able to articulate the benefits of the process, rather than just focusing on the outputs, as this is where the real learning occurs. The outputs themselves, however, will, and do, provide a great sense of ownership for the students.

Co-curricular opportunities

Summer internships in Student Education are an excellent opportunity to allow students to experience student owned learning, without the pressure of worrying about the mark or grade. They are an opportunity for students to engage in research at an early stage, often before they embark on any final year project or dissertation. Placements are paid, and generally work well over a full-time period of 4 to 8 weeks. Research internships can be either disciplinary or pedagogic research or curriculum development projects. They provide the chance for students to work alongside academics and other researchers in partnership, breaking down the traditional student-teacher relationship to form a research team. As the students will be full-time dedicated to their project, they can achieve a phenomenal amount of work and, in my experience, bring lots of energy, enthusiasm and ideas to a project. In the case of curriculum development, they also bring an invaluable student perspective. All students value this student-centred approach; in this way student interns can create a ripple effect.

Making it happen

Student owned learning is about taking a different approach to teaching. It is about relinquishing power in the classroom and taking on the role of a learning facilitator, and letting the students lead the learning. The embedding of employability within the curriculum was a key driver for my own decision to take this approach, but the benefits have been much wider. However, this approach is not without challenges, and so it is useful to consider what barriers might appear, and how they might be overcome.

Firstly, there may not appear to be space in an already packed curriculum; however, student owned learning is content-free – it is a way of delivering the curriculum.

Sometimes, professional accreditation is cited as a reason for not embedding alternative pedagogies; however, student owned learning satisfies professional body requirements and benchmark statements concerning open-ended problem solving and professional development. Finally, external contacts from relevant industries and alumni can be great advocates for the value of this approach.

Student owned learning provides an authentic opportunity, through the curriculum, for students to develop essential graduate attributes, including open-ended problem solving, teamwork, leadership, research and information searching, critical analysis and presenting to specific and varied audiences, both in written form and verbally. The authentic nature of the tasks coupled with a real sense of ownership on the part of the students ensures that motivation remains high throughout the learning process.

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BACK TO THE FUTURE: autoethnography

as a reflective model for enhancing practice

***Caitlin Kitchener**, Archaeology, explores how analysing reflections on teaching can not only improve practice but also dismantle structural boundaries.*

Introduction

Autoethnography is a personal, emotional, and highly reflexive method that aims to understand the self through rigorous self-questioning. It can take numerous forms but commonly involves answering a set of pre-determined questions (either through writing or voice recording) or using stream of consciousness to investigate a theme, feeling, or event. This first step may feel familiar as reflection is often part of gaining a teaching qualification. Autoethnography becomes another layer of personal feedback whilst also being a form of research in and of itself. Through carefully and critically exploring your own experiences, it becomes possible to situate your teaching in its wider social setting whilst also appreciating its meaning in the moment.

Importantly, autoethnography goes beyond being purely reflexive: "The objective of autoethnography is to (re-) introduce the self as a methodological resource" (Brigg and Bleiker, 2010: 788). Through harnessing the autobiographical or the creative process of writing a self-narrative, it is able to critique, investigate, and navigate socio-cultural issues and factors (Young and McKibban, 2013), producing reflections that demonstrate the personal is academic.

Thematic Analysis

In order to help autoethnography move beyond being only a possibly cathartic experience, it is useful to examine the writing or recordings. This is commonly undertaken when autoethnography is used as a research method in disciplines including sociology, anthropology, and the health sciences. Thematic analysis is one way of exploring reflections further. It involves reading and rereading the text multiple times, with this process helping the individual to highlight themes and to code with this leading to interpretation (Boyatzis, 1998). This can be done manually through physical highlighting with pen and paper or through using computer software but it is suggested here that the intimacy provided through manual coding is necessary due to the personal nature of autoethnography.

Themes are not waiting to be discovered or found, rather the researcher is active in deciding what constitutes a theme and how these relate to one another (Ely *et al.*, 1997: 205-206). Whilst how the highlighting is done and the text coded will vary, a neat way of summarising what a theme constitutes is provided by Braun and Clarke (2006: 82): "A theme captures something important about the data [...], and represents some level of patterned response or meaning within the data set."

By analysing the autoethnography, it shifts into being a *critical autoethnography.* The personal narratives produced are not just read passively or at face value but instead placed into their social context and positioning. But, how can this be used in practice?

Autoethnography in Practice

The first two sections have been largely theoretical and explanatory, but how

could autoethnography be used in practice? Here I draw upon some of my own experiences of using the method to enhance teaching practice.

Whilst undertaking teaching, I kept a journal. This is a collection of reflections on seminars and workshops written immediately after the event but also includes self-interviews where I asked myself questions. Through using these two different methods, I was able to reflect on several levels and temporalities. Reflexive writing is a core part of many courses in the sector supporting the development of staff new to teaching, as well as of other teaching qualifications and programmes, but I wondered how these reflections could become practice that extends beyond my own experiences.

My answer came from my own research. One of the strengths of research intensive universities is the ways in which research feeds into teaching content; therefore I attempted to use my research methods on my teaching practice. My PhD uses documentary sources from the nineteenth century; I apply thematic analysis to these sources to link together the data and highlight themes. I decided to use this method, with which I was familiar, to apply to my autoethnographical reflections. Analysing the autoethnography helps to provide meaning as well as context to the lived experience of teaching (Ellis and Bochner, 1992; 2000). Through having to read and re-read my reflections, I became intimate with them and was able to highlight repeated positives and negatives.

Autoethnography as Assessment

The other way that autoethnography could be harnessed is through including it as an assessment for students. Numerous departments already use reflexive writing and portfolios as assessments meaning the leap to autoethnography is possible. In a study on the use of autoethnography as an assessment in sociology, Cook (2012) highlights several positives including the development of students understanding of how their discipline connects to wider social issues, a move beyond regurgitation of the module content, and the creation of an environment of transparency and openness between student and lecturer. This last point connects to how autoethnography breaks the researcher/researched boundary.

The other way students could utilise autoethnography is as a form of evaluation of their modules, teaching, and departments. I have been unable to locate any literature that has attempted to use autoethnography as a way of altering or designing modules or providing feedback on them. However, student feedback is valued in other forms including student reps, module feedback forms, and focus groups. Whilst having every student undertake an autoethnography of their degree may be unfeasible, it would be interesting to have this rigorous data and to compare it with the feedback from those teaching the module. There is value in student-led learning (Marvel *et al.*, 2013); it is interesting to consider how this could transfer to student-led teaching.

Importantly, this is not a call to ban other modes of assessment or the use of third person as a writing style. Furthermore, some disciplines will be more readily aligned to autoethnography than others. Rather, it is about creating a more democratic or student led education. Reed-Danahay's (2017) arguments on the relationship between autoethnography and ethnography in anthropology provide some justification for this. Transferring them across to a higher education context, authoethnography could help to problematize insider/outsider or staff/student dichotomies.

How does it relate to teaching?

Universities aim to include research in their teaching, but to what extent is the researcher and their stories encouraged to be part of the programme? Autoethnography could be a way of bridging this gap. If it is understood to be about the stories of the self and the ethnography considered to be the story of *the others* (whether students, colleagues, or peers), these together are able to contribute to constructing university courses and cultures that place teaching into a meaningful context. Through being concerned with the intimate and personal self, autoethnography expands reflection from being only about the event or interaction to include behaviour, emotion, social phenomenon, and social structures.

Conclusions

The stories of teachers in higher education are worth sharing. Stories should not be absent from the creation of courses or university life. Autoethnography encourages these experiences to be returned to and dissected, often leading to new ideas.

Arguably, I am returning to an old and recurring theme studied and considered within pedagogy: the maintenance of authority by systems intentionally created to reaffirm hegemonies and hierarchies (Friere, 1972). Admittedly, the use of autoethnography in higher education is in a fledgling stage and the argument may appear to be conjecture. However, it is hoped that through implementation, most likely in pilot studies initially, autoethnography could prove its worth as a way of analysing reflections on teaching practice, assessing students, and receiving student feedback.

> *"Stories should not be absent from the creation of courses or university life."*

Emotions, feelings, and experiences should not be segregated from designing courses, implementing assessments, nor removed from the classroom. If we recognise how much of ourselves goes into teaching, perhaps we can deconstruct some of the boundaries between research and teaching.

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article

Students at the STEERING WHEEL: undergraduate research at LSE

Ellis Saxey *describes an undergraduate research project at the London School of Economics and Political Science (LSE), and looks towards its future development.*

At the end of summer term, undergraduate students exhausted from their exams gather in a lecture theatre at the London School of Economics. They have volunteered to be placed in a group of six unfamiliar students and to dedicate themselves to another two weeks of work.

What's the attraction? The possibility of conducting research. The student groups choose their own direction to investigate, and set off to carry out a small-scale research project. As we discuss with them on the first day, their degrees require them to learn things that other researchers have mapped out, but this project will enable them to find something wholly new.

The students finish the two weeks having written a 3000-word research paper, and having presented their findings at the conference which closes the project.

The nuts and bolts of GROUPS

GROUPS (standing for Group Research Opportunity Undergraduate Projects) was created in 2011 (by Dr Claire Gordon and Dr Jane Pritchard) to offer students a new experience, and develop new skills, during the summer term. It has taken place annually since then. The key principles of GROUPS are interdisciplinarity and Enquiry Based Learning. Students can draw on their disciplinary knowledge, but work in interdisciplinary groups. This is made easier because LSE specialises in social, political and economic sciences, and as a result many students share some common tools or perspectives. The project of GROUPS has been informed by the belief that no single discipline or method can offer all the answers to a complex problem; many of the projects use mixed methods and more than one conceptual framework.

Enquiry Based Learning, the other principle underpinning GROUPS, posits that students can learn highly effectively by posing and answering their own questions. To support students in this process, we have a team of supervisors – usually Graduate Teaching Assistants – who meet their student groups twice daily. While students choose the direction of travel, supervisors help them plan the journey and spot the obstacles.

Supervisors also support one another, because the projects are often outside their area of expertise; they meet every morning to 'debrief' and share skills.

In addition, over the two weeks a series of workshops offer input at particular points designed to be most useful to the students: on searching the literature; on using different methodologies; and on communicating findings through writing and presenting.

Every year of GROUPS is still a risky voyage. Research has no guaranteed successes, and insufficient data and ambiguous results challenge student morale. Students are volunteers, and can leave at any point. The student groups are often drawn to controversial topics – inequality, health, crime – and supervisors must help them develop ethical approaches. Current issues pose specific challenges; in 2017, for example, groups researching public responses to terrorism had to rapidly reconfigure their methods when a terrorist incident took place in London, mid-way through the project.

But every year has been successful, and student groups have completed ambitious projects and written thoughtful papers. Groups have presented their work at the British Conference for Undergraduate Research, and won the overall prize at the 2016 LSE Research Festival. Student feedback has described GROUPS as a 'wonderful, enriching experience', 'pushing me out of my comfort zone'. It satisfies students who want a taste of research: 'from the initiation of ideas to data collection and analysis – it was very meaningful to me.'

Upgrading GROUPS

One of the reasons I presented at the York Learning and Teaching Conference was to seek input on how to keep GROUPS moving forwards.

We want to build up public engagement in GROUPS. At present, students often 'drop in' to communities, conduct their research, then leave. We do ask the groups how their research aligns with the interests of their subjects, and how they will share their findings. But properly supported, students could be going further. Could students work more collaboratively, negotiating projects with the communities they research?

Another area for expansion is in terms of interdisciplinarity. Although student projects use a wide range of qualitative and quantitative methods, GROUPS has been firmly situated within the social sciences. We hope that the GROUPS model could be used in other disciplines. The organising academics would have to ask fundamental questions: what is research in this discipline? What are its methodologies? Can they be carried out by undergraduates of all years? What do students need to know before they can make a valid contribution? These questions are already being asked by many departments and institutions as they aim to increase undergraduate research within the curriculum.

We want to grow GROUPS, but we also think GROUPS could help other projects to grow, so we are currently creating a GROUPS toolkit, making our plans and resources available to all. We hope people will borrow and adapt whatever looks useful. In the meantime, we are always pleased to be contacted at ***tlc.groups@lse.ac.uk*** by interested individuals, departments and institutions.

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Advanced problem based learning at

Scott Slorach, *York Law School,* *discusses the development and implementation of an innovative, research-led module.*

PBL PROCESS

The pilot

Advanced Problem Based Learning (APBL) is the working title for an integrated pedagogy that aims to enable students to:

- Apply problem-based learning (PBL) skills at a higher level to analyse and advise on complex problems.
- Use their analysis and advice to identify areas of personal interest and perspectives to explore further through enquiry-based learning.
- Create a personalised assessment portfolio to demonstrate module learning outcomes.

This article explains the rationale for APBL, its learning and assessment processes, and reflects on responses to a recent pilot module.

York Law School (YLS) is one of the few law schools in the world to employ problem-based learning (PBL) as a core pedagogy. PBL – more prevalent in medical education – is a student-led, experiential learning process. At YLS, students work in a "law firm" on authentic legal problems, following a seven-stage process (see graphic above)

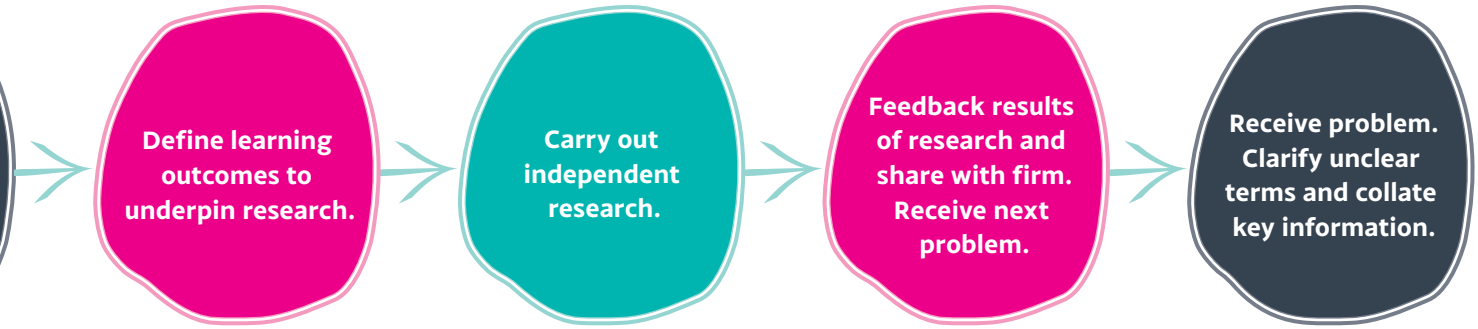
Stages 1-5 and 7 are collaborative, with stage 6 being independent. The process is chaired and scribed by students, with a PBL tutor present to provide support and guidance only on an "as needed" basis. Each PBL cycle takes one week.

The YLS experience of PBL has been positive: students are confident in dealing with unfamiliar problems, and develop interpersonal and team-working skills. Legal employers comment favourably on both the PBL approach and YLS student performance in group activities on trainee selection assessment days.

From this foundation, APBL was developed as a response to a number of factors:

- Most students are confident PBL practitioners by some point in their second year and there were signs of

York Law School: pilot and results



PBL "fatigue" in year three: could we increase the challenge in applying PBL techniques?

- Students achieve a particular level of legal understanding at the conclusion of the standard PBL cycle: could we use this as more of a starting point for a process leading to deeper understanding?
- Year three should offer students opportunities to flourish by exploring personal interests and perspectives, and pursuing individual ambitions. Could we enhance this, providing greater freedom and flexibility to students to demonstrate module learning outcomes (MLOs) and programme learning outcomes (PLOs)?
- We want YLS graduates to be capable of communicating to different audiences in varied formats: could we promote this in conjunction with the flexibility described above?
- The benefits of formative assessment and feedback are unquestionable but can be time-consuming and disruptive within a ten-week module: could we provide the benefits whilst avoiding the drawbacks?

To achieve these desired outcomes, the APBL module was designed by integrating PBL and enquiry-based pedagogies, with two distinct phases, each with its own assessment.

The first phase involves students applying PBL to a complex scenario. The complexity is based on the scenario giving rise to a greater number (compared to a standard PBL problem) of interconnected

> *"York Law School (YLS) is one of the few law schools in the world to employ problem-based learning (PBL) as a core pedagogy."*

legal and client issues in both known and new areas of law. Whereas a standard problem involves aspects of two areas of law – eg, contract and property – the pilot APBL problem involved aspects of company, employment, commercial, contract, intellectual property and EU law. Consequently, the PBL phase runs over four weeks rather than one, and there are effectively two PBL cycles involved:

1. An initial collaborative analysis and individual research cycle, resulting in high level learning outcomes directed at confirming potential issues and areas of law. Students provide peer and receive tutor feedback on these. This is effectively a formative phase en route to the first assessment.
2. Using this feedback, students work collaboratively on more targeted learning outcomes, directed at more detailed research in order to provide specific advice to the client. The results of this research are used to draft an individual client letter of advice, the first assessment element (30% of the module total).

The second phase of the module commences with students presenting a proposal to peers and their tutor for the second part (70%) of the module assessment. This is in the form of a portfolio, designed to allow students to explore in greater depth chosen issues and areas of interest raised by the scenario. The design provides 80-100 notional learning hours for the development and completion of the portfolio.

Students' proposals need to justify how:

- They will allocate that time
- Their outputs will represent the use of that time
- Their portfolio will enable them to demonstrate the MLOs (Students are provided with a detailed "unpacking" of the MLOs to assist them with the latter).

Portfolios should comprise three outputs, each relating to a different issue or area of interest arising from the initial APBL scenario whilst together having a coherence based on some form of connection between them, or common rationale. Students have freedom as to the format of each output: there are no word count or other limitations, save that they must demonstrate communication to different audiences in different formats.

Students also have freedom to choose the perspectives taken in creating outputs, to reflect personal, academic or employability aspirations. This might mean, for example, a focus on legal practice, exploring the impact of law on realising commercial objectives; how regulation affects the operation of a company and its officers; processes involved in protecting company rights and property;

or examining in detail a specific legal document. Alternatively, a more critical academic perspective, evaluating academic arguments on, eg, ethical and gender issues; comparative perspectives; critically evaluating legislation and policy. Equally, students could consider a blend of varied perspectives, eg, within a single output, comparing the commercial impact of a particular piece of law with alternative academic or policy perspectives.

Once proposals are agreed, the remaining four workshops provide a range of formative feedback opportunities, allowing students to present:

- One output work-in-progress for tutor review and feedback.
- A second output work-in-progress for peer review and feedback.
- A final draft of an output for tutor review and feedback; and
- One output for feedback in a conference style workshop.

For students, tutor review sessions are "working workshops": whilst the tutor provides individual feedback, the other students are working on their outputs. Between workshops, students follow an enquiry-based learning process, continuing individual research to develop their outputs, informed by the formative feedback from workshops.

Results

What were the results of this first foray into APBL? Eight students studied the pilot module, five of whom provided module evaluation feedback. From this, plus anecdotal feedback, the following three elements stood out as positive:

1. The "advanced" nature of the problem in terms of complexity and its ability to open up new areas of knowledge and enquiry;
2. The flexibility and freedom of the assessment process; and
3. Tutor support.

This is based on the following student "best feature" comments:

- *"The vast areas of corporate/ commercial law that this module enables you to explore".*
- *"...it allows you to tailor outputs to the areas of the law which interest you".*
- *"The freedom to shape your own assessment".*
- *"Feedback to tailor your proposals, and breadth of knowledge learnt."*
- *"The support provided by [tutor] was excellent too." (The evaluation statement "My tutor provided direction and support when required" was the highest rated – average 4.8/5 – element of the module.)*

> ***"In conclusion, we have something positive to develop further: a concept that allows students flexibility to flourish, that integrates and advances two embedded pedagogies, and, in doing so, creates a series of valuable formative experiences."***

From a tutor perspective, there were other points to note:

Students who best demonstrated the MLOs embraced both the module ethos and the criteria. Examples of portfolios that demonstrated this were:

An overarching theme of new product development, comprising:

- A self-developed case study giving rise to two potential offences, and a detailed memorandum of advice to a company.
- An academic legal opinion on the concept of protection of trade secrets.
- Another self-developed case study giving rise to a powerpoint presentation on advertising and marketing (with accompanying referenced notes) to a company board and in-house legal team.

A theme around employment, comprising:

- An academic paper on collective consultation under an EU directive.
- A PowerPoint presentation with detailed speaker notes on how Brexit might affect employment law in the UK.
- A guide for an HR department on implementing proposed redundancies (these were indicated in the initial PBL scenario), including a model selection procedure and time-line flowchart.

Some students took a "safer" option of compiling a portfolio comprising three, more traditional and less varied (in format) academic outputs.

Some students suggested that they would have preferred to have word limits. There was a 1,500 word limit for the letter of advice on the initial PBL problem: this challenged students to be direct and concise on a range of legal issues. With no limit, portfolios ran to between 7,000 and 10,000 words. However, those that fared best were not necessarily the longest, and students were able to work on these, with formative feedback opportunities, for up to 100 hours. The message of "quality not quantity" was given, and this was carried through into marking.

There were no lectures or plenary sessions – the module comprised workshops only. Some elements of the early PBL sessions became informal plenaries, where the tutor promoted guided discussion of new legal or commercial concepts, or areas of regulation. This informality and student-driven aspect of developing understanding was viewed as positive, and in line with the desired ethos of APBL.

A final tutor perspective was that the module was enjoyable in being able to provide one-to-one formative feedback on a rolling basis, and seeing varied outputs develop from ideas to completion over a shorter period than a dissertation. It was also challenging (and enjoyable, if you like uncertainty) in that, at the outset, the tutor had no idea of what students would be presenting to be assessed.

In conclusion, we have something positive to develop further: a concept that allows students flexibility to flourish, that integrates and advances two embedded pedagogies, and, in doing so, creates a series of valuable formative experiences. We plan to do more: from 2019, all third year students will take an APBL module, and we shall be creating a range of PBL scenarios as the base from which students can advance their interests and skills. We would also be keen to explore the transferability of the ABPL learning and assessment design principles with other disciplines. These principles, with a well-thought out scenario, and a willingness to experiment, could provide some very interesting and valuable learning opportunities.

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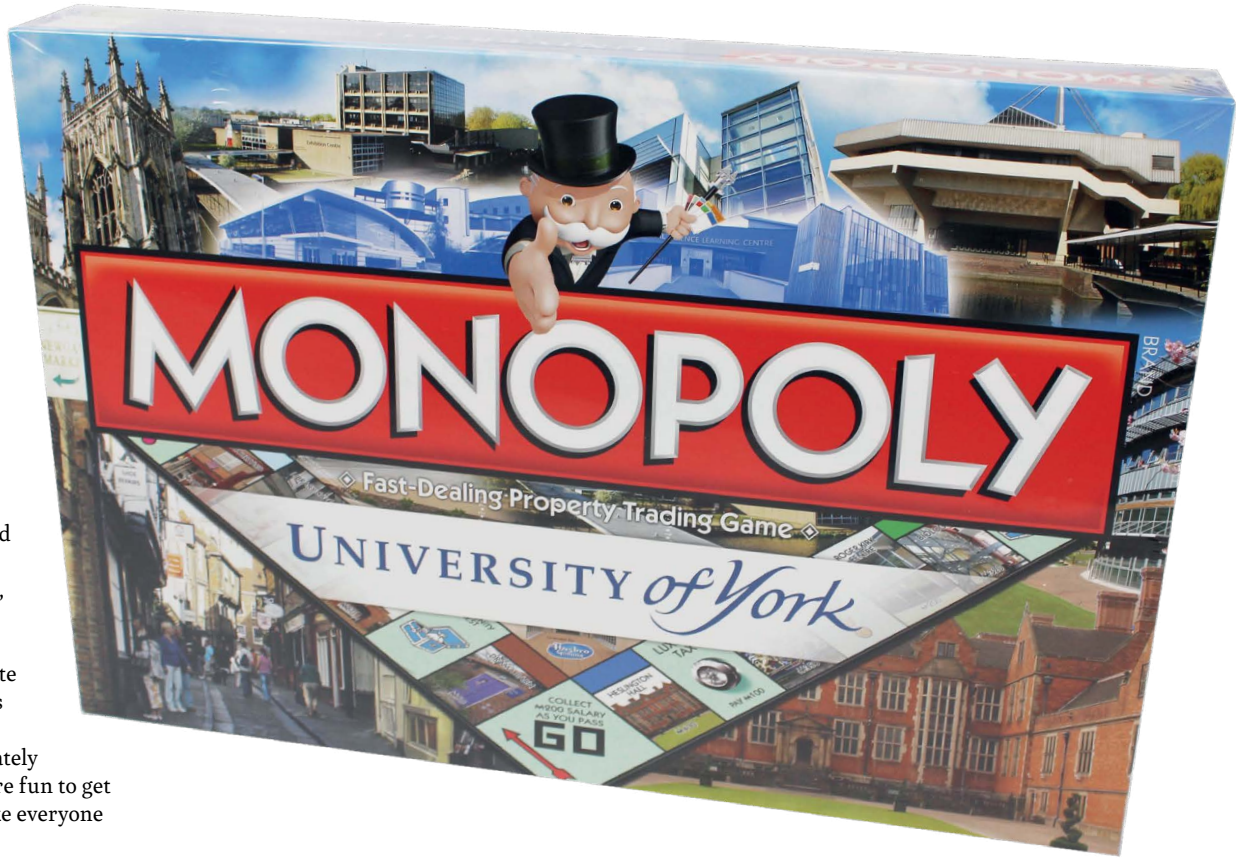
Games and play

Pen Holland *and* ***Katie Smith****, from the Department of Biology,* *consider how we can use games and play to encourage students to become active participants in creative learning.*

From early babyhood to adulthood, people spontaneously engage in learning through games and play, developing cognitive, social, emotional and physical skills along the way. Children who play with construction toys such as LEGO in preschool have better visual perception of spatial relationships (Nath and Szucs, 2014) and significantly increased mathematical achievement in adolescence (Stannard *et al*., 2001). Nath and Szucs (2014) suggest that playing with construction toys may therefore be used to effectively train and strengthen mathematical skills. More fun than just memorising times tables!

As well as developing skills, children and adults can absorb an immense amount of information and deepen understanding of specific subjects (both real and imaginary) by playing commercially available video and table-top games. Some of these games even have their roots in education. *Monopoly* started life as *The Landlord's Game* (Ketcham, 2012), designed to teach the idea that holding land in common, with members acting collectively as landlord, was a cooperative antidote to successful monopolies and financial ruin for everyone else. Unfortunately players found it a lot more fun to get all the property and make everyone else go bankrupt, an excellent example of learners' emergent behaviour being quite different to the original learning objectives of the game. *Phylo* (Balmford *et al*., 2002) is an ecology themed version of *Pokémon*; strategy games such as this need a lot of resources and time to properly develop but can be extremely effective.

An important part of developing lifelong learners is instilling an intrinsic drive to learn: individuals who want to learn, will continue to learn. The York Pedagogy (Robinson, 2015) encapsulates this idea in its focus on active learning and a drive for innovative and effective formats for learning and teaching to "engage students in the joy of discovery and invention." Harnessing a desire to play in the classroom via games and gamification, and using games as a platform through which to practice research skills, offers an opportunity for students to learn in an uninhibited, independent and personalised way, which may help students with anxiety to engage with course material without fear



of failure, and enhance the quality and enjoyment of student learning.

What are game-based learning and gamification?

Play (*verb*): to engage in an activity for enjoyment and recreation.
Game (*noun*): 1. a form of competitive activity or sport played according to rules. 2. An activity that one engages in for amusement.
Gamification (*noun*): the embedding of game mechanics or motivational techniques in a non-game environment or activity.

Games, play and gamification can be placed on a continuum which uses the amount of structure and extensiveness of use of these concepts in the creation of a 'product' (Figure 1). Games and game-based learning differ from freeform play in that there is a formal structure within which to explore the product, while gamification uses elements of game mechanics and reward mechanisms as part of the process, but the product itself has a non-game-like purpose and other elements that are not game-like (Deterding *et al.*, 2011). Gamification in education starts with the educational material, which is then structured to engage learners using game mechanics and motivational techniques (eg Robinson, 2018). Two increasingly common examples of gamification in education (that may not necessarily have the expected impact on student motivation and performance; Kyewski and Kramer, 2018) are motivational badges for achieving levels of knowledge or skill, and adding a competitive element to a given task. For more information, see Kasurinen and Knutas's (2018) review of research trends in gamification studies.

Game-based learning tends to start with the game, which is then adapted to incorporate the educational material. An entertainment game has no 'real' purpose, though may still be useful for education. For example, *Plague Inc.* (Ndemic Creations, UK) has been used with university students to reinforce the topic of epidemic spread (Robinson *et al.*, 2018), while Rodrigues and Carvalho (2013) taught physics with *Angry Birds* (Rovio), and LEGO has been used to transform mindsets about natural selection (Petersen, 2017). Serious games do have a real world purpose as well as entertainment value. One example of a bespoke game in higher education is *The Last Straw*! (Rossiter *et al.*, 2008), a board game structuring the way in which players discover and discuss social determinants of health.

Good game design in learning environments consistently includes four concepts (Stott and Neustaedter, 2013):

1. Freedom to fail
2. Rapid feedback
3. Progression
4. Storytelling

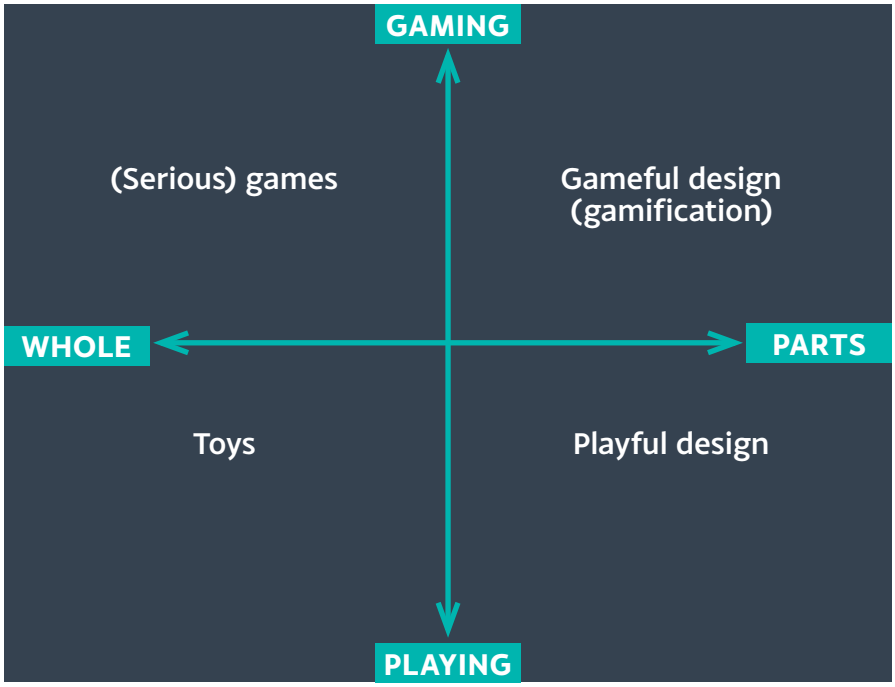


Figure 1. *The continuum of games and play, and extensiveness of design, as defined by Deterding et al. (2011).*

Failure is demotivating in the classroom – the fear of causing irreversible damage (whether that be to lives or 'just' to final results) can take students' focus away from the process of learning. Encouraging students to take risks and to be exposed to realistic consequences in a safe space increases engagement. This requires low stakes and rapid feedback.

Feedback forms a critical part of the learning process in any education programme. Games are all about feedback: continuously as the game progresses, as well as end-of-level feedback for situations in which players are often required to integrate skills from various separate processes to overcome a larger challenge. Sounds like module based learning with a synoptic assessment!

Immediate feedback and clear goals are two of the prerequisites to achieve a flow state (Csikszentmihályi, 1990). This encompasses several factors, of which three key ideas for an educator are intense concentration or immersion, a sense of personal agency and optimism about success, and a perception that the experience has been intrinsically rewarding. A well designed game uses feedback and goals to balance opportunity and player capacity, allowing the player to progress through skill stages while remaining in the flow channel (Figure 2, overleaf).

Finally, people learn better when the facts are embedded in a story rather than as a bullet point list (Kapp, 2012). Using narrative to structure learning in the classroom, and a unifying story throughout a module or programme, has the potential to increase engagement and learning gain. Storytelling is therefore a useful element with which to harness the effectiveness of games in education.

I'm sold, what do I do next?

- Do you like playing and games?
- Have you defined a specific educational problem that a game or gamification might help solve?

Then consider:

- Who is your audience?
  - Is it just the students in your class? Or do you want to make an app and take it to the masses? Use it for outreach?
- What are the primary learning objectives/outcomes of the game? (Set clear goals!)
  - Are these about facts, knowledge, concepts, connections?

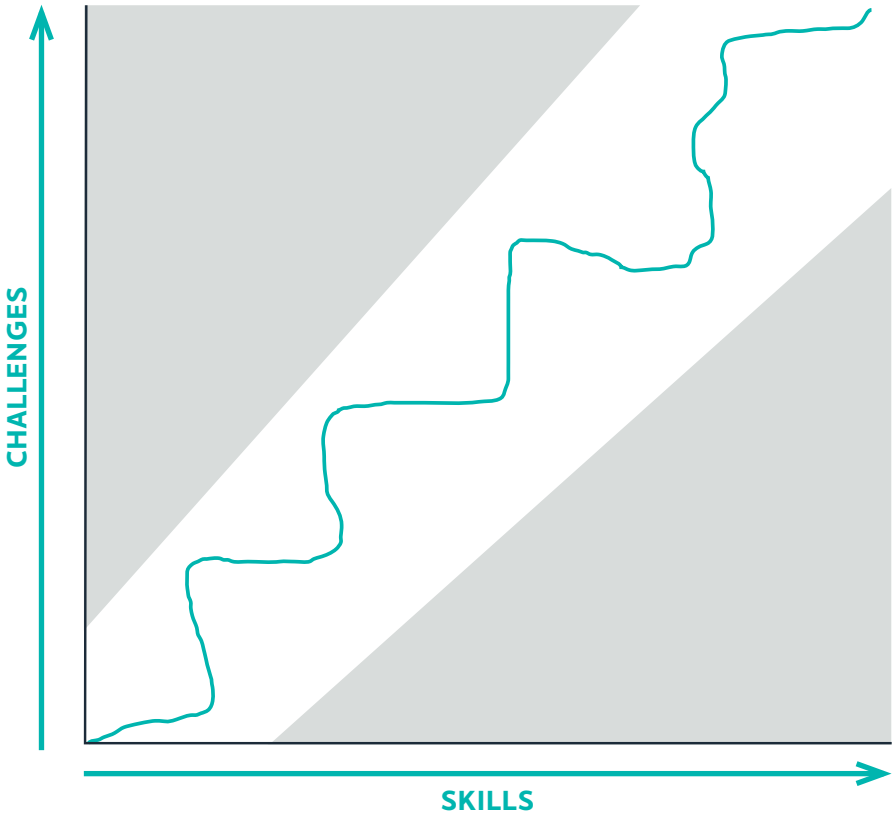


Figure 2. *As skills and challenge increase, the player's path on their learning journey should remain in the flow channel. Difficult challenges without the requisite skills may result in anxiety and worry. Too little challenge for a high skill level results in boredom. (Graph adapted from the 8-channel model of mental states published by Massimini* et al.*, 1987.)*

  - Will you achieve your goals through the information processed by players of the game (eg facts written on cards), via the mechanics used to play the game (eg dividing up action points to implement personalised tactics), and/or by stimulating discussions of deeper meanings while playing?
- Do you want/need to measure the effectiveness of the game? In which case, is this:
  - To improve the game design for future deployment?
  - To evaluate effectiveness in achieving learning outcomes?
  - For scholarship/research outputs?

Next, consider:

- Can you use/adapt an existing game or game mechanic to help students understand or engage with an identical or analogous problem in their study area?
- Do you want/need to develop a bespoke game themed around a tricky or complex idea?
- Do you want to get your students to develop a game, as a way of exploring the subject area themselves?

Finally, think about:

- Aim: What's the point of playing the game?
- Rewards: What is motivating the player to keep going?
- Levels: How does the player progress through the game?
- Feedback: What kind of feedback does the player need at each stage?
- Win state: How do you win (or lose) the game? Don't make it too easy, or too chancy.
- Player interactions: Competition or cooperation, or both?

You're ready to start. Now go and read all the references to this article, and play lots of games!

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A research-led approach to student voice

Kimi Smith *and* ***Nick Glover****, YUSU, consider using Participatory Action Research to enhance our student voice practices.*

The University of York prides itself on its research and on how this research feeds into teaching. Our recent review of the student representation practices used across departments has inspired thinking around how we can adopt a research-led approach to enhance student voice activities and empower students to actively engage in educational transformation. One such approach, highlighted during our wider reading in support of this project, is the use of Participatory Action Research (PAR, also known as 'Educational Action Research' or 'Students as Researchers') as a tool to evaluate our student voice practices.

Since the original definition of Action Research (Lewin, 1946), in which researchers plan and enact change in a cyclical and dynamic manner by responding to their observations throughout the process, the addition of the word 'participatory' has introduced the concept that those 'benefiting' from the research should be actively involved in the design and implementation process of the research (McTaggart, 1991). The theory behind such practice reflects our ideals of an authentic partnership between students and staff, as it promotes activities that are "interactive rather than extractive" (Kilpatrick *et al.*, 2007, p. 353). Criticism around examples of implementation in a higher education setting has resulted in much debate around the meaning of 'participation' (Santos, 2016), and though it will be important to take these implementation issues into account, this article focuses on why we should adopt this approach and cultivate research-led student voice activities.

Our thinking behind a 'student voice continuum'

The responsibilities currently placed on Academic Reps are wide and varied, and that students are 'time-poor' is often cited as a barrier to engagement. By rethinking how students are included in departmental practices, we can reduce the burden and confusion that surrounds the role of Reps and create more opportunities (with fewer time constraints) with which more students can engage. Across the literature (see Figure 1), scholars have put forward typologies of student voice, with formal collection of student feedback at one end of a continuum of engagement, and co-design and PAR at the other (Hall, 2017).

In a recent consultation with University staff, interesting points were raised around the differences between operational feedback and involvement in strategic developments. These discussions led to a shift in our thinking towards a continuum of student voice oriented activity, to help move away from seeing students purely as generators of feedback towards a broader concept of student voice, where genuine dialogue between students and academics results in the co-production of knowledge and leads transformative change; a notion supported by the literature (Carey, 2012).

Seeing students as partners

In the current Higher Education context, characterised by the Teaching Excellence and Student Outcomes Framework (TEF) and the outcomes-focused regime of the Office for Students, the collection of student feedback and formalised systems of representation (found on the left of the continuum) are privileged above more transformative student voice activities (those found on the right), such as co-production and the empowerment of students as 'change agents'. Within what is arguably an increasingly quasi-consumerist environment, where student voice can all too easily be reified into a thing to be measured and benchmarked (Hall, 2017), we need to be proactive in reviewing and rethinking our practices. By adopting innovative approaches we can work to depoliticise and revitalise the purpose of our student voice activities and inspire authentic partnerships that move away from what could be viewed as tokenistic engagement.

A distinction can be made between consultation, or using students as a data source (Fielding, 2011), and partnership, whereby students are given the opportunity to engage as "active participants, co-researchers or joint authors" (Groundwater-Smith and Mockler, 2015, p.162). To support this distinction, Flint, Goddard and Russell (2017) promote a partnership approach to student voice on the basis that the level of ownership and agency held by students in such a partnership is considerably more than in traditional models of consultation. By creating meaningful partnerships, we can explore PAR models based around shared ownership, dialogue and a critical orientation towards pedagogical and organisational discussions.

Using PAR to enhance practice

There are multiple examples of how PAR has been used in an educational setting, some of which are in HE institutions, with varying degrees of success. By learning from these case studies, we will start to use such methods to implement student voice activities that are designed, in partnership, by the students and staff who will benefit from them.

The Student Action Research for University Access (SARUA) project in Australia aimed to improve access to higher education from disadvantaged groups. Atweh (2003) argues in favour of PAR for three reasons: involving the affected group will provide more appropriate solutions; the group are in a better position to provide insight on their own experience, and involving the group in the process is empowering. We want to use PAR to evaluate our current student voice activities, in particular whether Staff Student Forums are the best approach or if enhancements can be made to ensure they are engaging, effective and collaborative. With this in mind, 'group' in our context refers to both students and staff. We will seek to understand the challenges of implementing PAR projects in HE settings, ensuring that our approaches are 'led from within'.

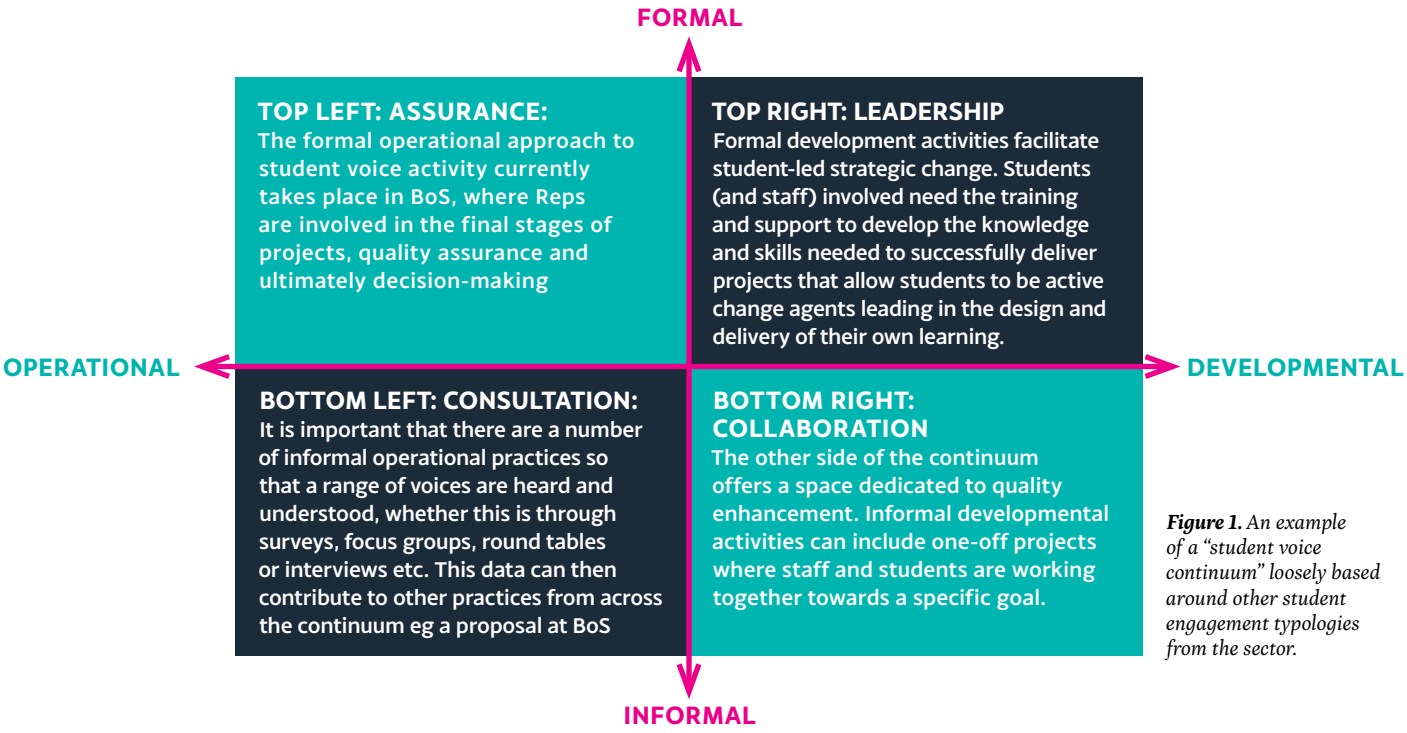

Figure 1. *An example of a "student voice continuum" loosely based around other student engagement typologies from the sector.*

Bryson's (2017) reflections on a PAR initiative at Newcastle University will be really useful when we come to plan our projects. One of the key successes cited in this article is the opportunity to hear views from 'hard to reach' students. We hope that by using PAR we can do the same, thus finding solutions that will be more attractive to a wider variety of students. Another positive reflection was that the projects created opportunities to have conversations that might not necessarily happen elsewhere. During our review work, departmental staff spoke about their positive experiences of engaging students as partners and revealed frustrations about the lack of a consistent structure or guidance to support this. By adopting a PAR approach in multiple departments, we would share the successes and learning from all projects and provide continued support to implement new activities.

When reporting on their study in Northern Ireland, Kilpatrick *et al.* (2007) focus on the peer research aspects of PAR and how this helps to reduce effects of power imbalances that can occur in discussions between staff and students. During our review, this subject was often touched upon and how, even if unintentional, the perception of a power struggle can have a negative impact on engagement. If done successfully, PAR can create authentic partnerships which see all participants as equals.

Though the principles behind this approach are the foundations of good student representation practice, we are not suggesting that PAR is suitable for all student voice activities; it should be used as a supplementary practice, and should not replace formal representative functions. Looking back to the student voice continuum (Figure 1), PAR would sit on the right hand side and support the activities that sit on the left ie Course Reps sitting on a Board of Studies. At YUSU, students are at the heart of everything we do, and in response to current narratives across the sector, we want to encourage increased participatory student voice activities that empower students to become equal partners in their education.

Moving forward

As we look to the next academic year, we hope to be in a position to offer PAR opportunities for students to lead on in partnership with academic staff. If you would like to be involved please get in touch by emailing ***engagement@yusu.org***.

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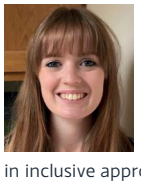
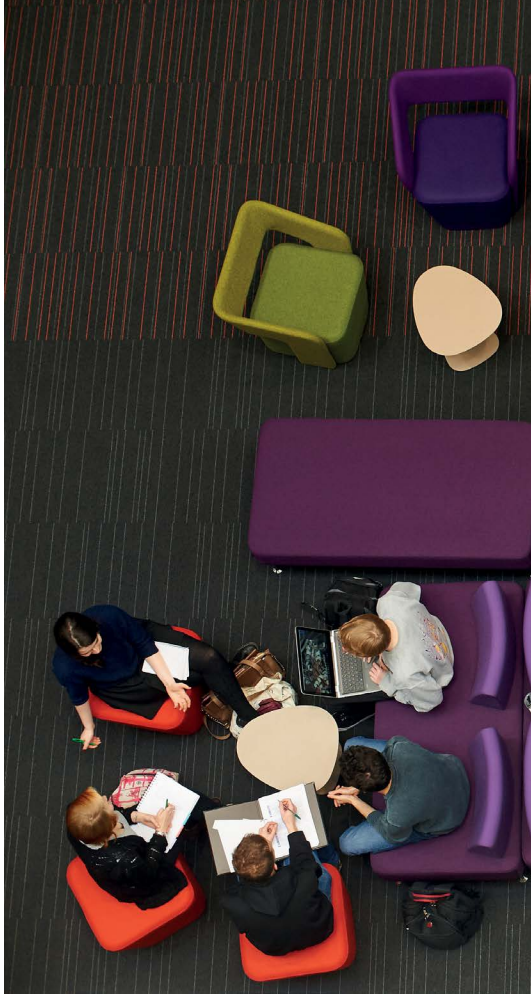


Kimi Smith is the Student Engagement Development Coordinator at YUSU and facilitates our Academic Rep system and is working to enhance our student voice practices. Kimi is interested in inclusive approaches to teaching and is passionate about empowering all students to take an active role in shaping their learning.

Nick Glover joined YUSU as the Student Voice and Insight Manager from Durham Students' Union and has previously worked for an MP. Nick is interested in the theory and practice of student voice in higher education – particularly the idea of 'student talk' as democratic and transformational.

Collaborative Engagement for MSc Research Projects

***Fiona Sweeney**, Stockton Hall Hospital, and **Jane Clarbour**, Department of Psychology, discuss how collaborative engagement in research projects can enhance student learning.*



The aim of the MSc in Applied Forensic Psychology at the University of York is to provide students with specific knowledge related to forensic psychology and with the skills to apply this knowledge within forensic settings. Consequently, there are real opportunities for the independent project submitted at the end of the year (which accounts for 60 credits of the 180 credit degree) to be conducted as primary research in applied settings. This is often a new experience for students; therefore, the course provides a 20-credit level 7 module, "Research, Design, and Statistics", in the Autumn term to refresh and remind students of the skills and knowledge required for psychological research. There is a further module in the Spring term, "Issues and Methods in Applied Research", to continue support for students' research skills. The research of one of the authors of this paper (Fiona) whilst at the University of York was around exploring Prison Officers' experiences of working with individuals who engaged in suicide-related behaviour. As this was a relatively understudied area and one which was new to the student, supervision from an experienced researcher (the second author, Jane), and collaboration with other professionals was key. The research supervisor (Jane) provided a scaffolded approach (Stanier, 2015) for this work, where experts were made available to help the student understand and clarify the problem at the outset of the research, with a point of contact provided at the prison (Deputy Governor) as a practitioner-supervisor. In line with this approach, the level of support provided is reduced as the student demonstrates increasing confidence as an independent researcher.

Psychological literature is rife with theories about how individuals learn, with much debate about the best process of passing on knowledge to students (eg Bellanca and Brandt, 2010). However, one useful approach in this context is that of the Situated Learning Theory (Lave and Wenger, 1991). Situated Learning Theory proposes that learning takes place in the same context in which it is applied, as knowledge is co-constructed between members of a community. As this research was conducted in the Prison Service, which has a very distinct culture, it was important to gain an insight into the operational culture and experiences of death, care, and suicide in order to enhance the quality of data collection. This is important as the results of the study intended to inform, and potentially influence, the context in which these professionals work (Jewkes, Bennett, and Crewe, 2016).

A case study of the student journey

Throughout this project, Fiona collaborated with numerous professionals in a variety of contexts. Firstly, discussions with senior managers and psychologists at the prison where data was being sought were imperative in order to gain their approval for the project, and also to cater to the practicalities of undertaking research within a prison setting with regards to operational running, security considerations, and ethical factors. As this research entailed gathering sensitive data from prison officers, ethical approval was sought and obtained from the Prison Service research and ethics committee, as well as from the Department of Psychology, University of York ethics committee, following stringent guidelines as set out by the British Psychological Society for research involving human participants (BPS) (BPS, 2014). As this research asked participants about current levels of support for officers after experiencing a prisoner attempt and/or commit suicide, along with questions concerning the support they would like; it was important to ensure that researcher expectations were realistic with regards to the feasibility of further support for participants if requested. Secondly, attending a conference organised by the University of York's CrimNet network on deaths in the criminal justice system allowed Fiona to observe presentations on similar topics which sparked ideas around project design and dissemination of findings. Finally, presenting the proposed research topic at the University of Durham during a professional conference hosted by PORSCH (Prison and Offender Research in Social Care and Health) was invaluable. The audience included professionals such as Prison Governors, Prison Officers, Mental Health Nurses, Psychologists, and Social Workers. Fiona was therefore able to generate discussions around their experiences and what questions they felt were unanswered. This experience helped in designing the interview schedule and highlighted potential limitations such as a lack of participant engagement, so that these could be overcome and strengthen the research.

There are many benefits of collaborative engagement for students completing MSc research projects such as enhancing their understanding about the intricacies of the research topic, and gaining a greater insight into areas for potential exploration.

> *"Collaborative engagement can enhance student's confidence in their own ability, giving them a sense of self-worth."*

For example, when professionals at the PORSCH conference were asked questions around their own experiences, many became visibly upset and reported symptoms akin to trauma. The sensitivity of a research subject and the human element can often get lost within the aim of completing and disseminating research. Therefore, this experience really highlighted the need to be aware of participant's wellbeing throughout this research project. In addition, through collaborative engagement, many professionals highlighted the importance and need for this research to be conducted. Senior managers expressed concerns that they did not know much about the coping mechanisms employed by prison officers after an incident of suicide-related behaviour, and prison officers stated that they were never listened to or cared for. Due to this reaction, there was a great drive from both authors to disseminate and publish the research in order to address these concerns. This research was subsequently published in the Journal of Forensic Psychiatry and Psychology with the Deputy Governor of the prison (Sweeney, Clarbour, and Oliver, 2018).

Impact and suggestions for practice

Collaborative engagement can enhance student's confidence in their own ability, giving them a sense of self-worth and an awareness of the importance of research (which is often the most daunting aspect of completing a degree (Papanastasiou and Zembylas, 2008); see also Maharajan et al., 2017). This general confidence and awareness all feed in to enhancing employability, as collaboration within the workplace is now common practice and deemed to be an essential skill.

Despite this article focusing on the collaborative engagement from one student on one research project, it can be generalised to other students' projects in a number of ways. Firstly, academic colleagues who supervise students can and should encourage them to engage in applied research where appropriate, and to not shy away from gaining access to sample populations outside of the usual (which is often other students). Applied research at MSc level can be challenging and requires commitment from students, but it is possible and the rewards students gain from conducting research in applied settings can be invaluable.

Another way of enhancing collaborative engagement in student-led projects is by inviting applied researchers to run workshops with students to help them generate research ideas. For example, in the MSc Applied Forensic Psychology cohort 2016/17, Professor Adrian Raine worked closely with students to develop potential MSc research projects for a week at the beginning of the academic year. These close working relationships between students and renowned researchers can enhance confidence, and their flare and passion for research is often infectious, meaning students can become excited about the prospect of conducting an independent piece of research. Finally, previous students who have benefitted from collaborative engagement in their research projects can guide current students, helping the process feel achievable and providing another line of support during their time at university. Therefore, collaborative engagement is most definitely feasible, and should be something that is consistently encouraged within the university environment as this can have wider impact than may first have been considered.

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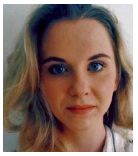

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Support, development and recognition for LEARNING AND TEACHING

FORUM WORKSHOPS

The Learning and Teaching Forum organises an exciting series of one-off workshops and events, delivered and facilitated by experienced academic and support staff. Workshops are open to all staff and postgraduate students. If you are unable to attend an event but would like a copy of the materials, please let us know. For further information, see: *york.ac.uk/staff/teaching/community/peer-support/forum*

THE SCHOLARSHIP OF TEACHING AND LEARNING NETWORK (SOTLN)

The SoTL Network brings together a suite of resources, professional development, discussion and dissemination opportunities focused upon looking at teaching and student learning in a scholarly and research-orientated way. The current range of activities organised as part of the network includes an annual SoTL journal, invited speakers, and a strand of seminars designed to engage colleagues with key and emerging pedagogical literature. For more information, see: *york.ac.uk/staff/teaching/develop/network*

FUNDING OPPORTUNITIES

The Rapid Response Fund supports small-scale short-term projects, initiatives or purchases to enhance the quality of learning and teaching by addressing a clearly-identified need or issue. Funding is limited, and grants will be awarded on a first-come, first-served basis; please also note that departments in a stronger financial position may be asked to fund initiatives from their own resources. For more information, see: *york.ac.uk/staff/teaching/support/funding*

THE YORK PROFESSIONAL AND ACADEMIC DEVELOPMENT (YPAD) SCHEME

The YPAD scheme is based upon the University's Peer Support for Teaching policy, and involves participants working to develop their practice in groups supported and facilitated by an experienced colleague. The scheme is designed to be inclusive of all staff groups who teach or support student learning (including graduate teaching assistants, research staff with teaching responsibilities, associate staff and learning and teaching support staff) and caters for all levels of experience. YPAD is accredited by Advance HE (formerly the Higher Education Academy); this means individuals who successfully engage with the scheme will secure professional recognition through the award of an HEA Fellowship category appropriate to their role and their level of responsibility for teaching and supporting learning. For more information, see: *york.ac.uk/staff/teaching/develop/ypad*

THE NATIONAL TEACHING FELLOWSHIP SCHEME (NTFS)

The NTFS Individual Awards form part of a nationwide, government-funded initiative to promote excellence in learning and teaching. Operated by Advance HE (formerly the Higher Education Academy), the Individual Awards competition recognises individuals who have made an outstanding impact on the student learning experience. 55 awards are available each year, to be used for personal, pedagogic and professional development in learning and teaching (there is no longer a formal project requirement). For more information, see: *york.ac.uk/staff/teaching/reward/ntfs*

SUPPORT FOR TECHNOLOGY ENHANCED LEARNING (TEL)

Technology enhanced learning refers to the use of online systems and tools in support of learning and teaching activities. TEL support at the University of York is provided by the E-Learning Development Team in the Academic Support Office. The team offers individuals and Departments support in the design, delivery and evaluation of learning technology interventions at the activity, module and programme level. This includes guidance on the use of the University's centrally-supported virtual learning environment *Yorkshare*, and advice on a wide range of learning technologies, including use of Google Sites for portfolios, multimedia and video, lecture recording, technology-supported assessment, in-class technologies and collaboration out of class. For more information, see: *york.ac.uk/staff/teaching/support/technology*

If you are interested in contributing an article for the next or a subsequent issue of *Forum* magazine, please contact the editor, Ruth Penfold-Mounce, or the sub-editor, Phil Robinson-Self. Our next issue, to be released in Spring term, will be loosely themed around the idea of 'creativity' in teaching and learning.