

Faculty of Science Education and Student Experience Newsletter

– August 2018

Updates from the outgoing APVC

At Christmas, we published the first Faculty of Science Education and Student Experience Newsletter, and now that Semester 2 has finished, it is time for the second one. In this, I will provide some updates on things that have happened in Education and Student Experience over the last 6 months, and also provide reports on the small grants scheme projects that have been running this year.

So amongst the many positives from the last year were Psychology winning the Staff Oscar for Best School, with Mathematical Sciences as the runners-up, and the Faculty of Science winning the Student Union Education Network best Faculty award, along with our Faculty SU rep, Adam Blakey winning the best Faculty Rep award. There have also been a number of other personal successes with Lord Dearing Awards for Andrew Armour (Physics and Astronomy), Tom Wicks (Mathematical Sciences), Lisa Coneyworth (Biosciences) and a Team Award for the “Enterprise for Chemists” module (Chemistry), which is a module designed and delivered in collaboration with experts from industry, to produce chemistry graduates with the key business and commercial awareness skills necessary to successfully convert technical ideas into profitable business ventures.

To some extent these successes are reflected in the most recent NSS scores for our Schools, with Physics and Astronomy, Pharmacy and Chemistry bucking the national trend of falling NSS scores in Russell Group Universities, particularly those that were involved in industrial action around the time that the NSS survey was open, and the other Schools doing no worse than other parts of the University. As well as the strike action, timetabling issues at the start of the academic year will have impacted negatively on the NSS, and this would also have been a cohort that was caught in the changes to Student Services and introduction of Service Centres over the last couple of years. These are issues that have not completely gone away despite the Timetabling and Organisational Effectiveness reviews, but much progress on improving the links between professional services and academics has been made following these reviews and hopefully these will be reflected in the student experience next year and improved NSS scores.

Two final things to finish with. Firstly, there have been a number of developments around management of the Natural Sciences degree, which remains a flagship programme in the Faculty attracting high calibre students. As of next academic year, this degree will be managed through the Faculty rather than rotating between Schools, and we are pleased to announce that it will have a new director, Chris Brignell (Mathematical Sciences). I’m sure you will all support Chris as he starts to implement improvements to the curriculum for this programme and build student numbers, and at the same time we should thank Keith Hopcraft and his team in Mathematical Sciences for the excellent work they have done on continuing to develop Natural Sciences over the last few years, and wish Keith a happy retirement. Secondly, my time as APVC for Education and Student Experience has also finished as of 31st July, after nearly 5 years in the role, firstly as Faculty Director of Teaching under Martin Schroeder, and then for the past 2 years as APVC under Kevin. There are many people I need to thank for their help and support over the last 5 years, especially the School Directors of Teaching and Learning and staff reps on the Faculty Student Experience committee, the student reps that have been excellent and active members of the Faculty Teaching and Learning and Student Experience committees over the years, Alvaro Roberts (our Faculty Learning Technology consultant), Pauline Maden (Faculty Careers rep), Elizabeth Newall and more recently Carol Hollier (Faculty LRLR rep), Christina de Matteis (Faculty Digital Learning Director), Andrea Blackburn (Faculty Student Services rep), David Chambers-Asman (Faculty Teaching and Learning Administrator) and Helen Hart (for organising me). And I know the role is in very safe hands with Katharine Reid, and I wish her every success for the future.

Matt Dickinson

Reports from Small Grants Scheme Projects

Earlier this term we put out a call for applications for the Faculty of Science Education and Student Experience Small Grants scheme for projects up to a value of £1000. We received 16 applications for funding which came to a total value of just under £13K. Below are the reports from these projects:

Physics and Astronomy: Getting 1st year physics students to love labs

To slightly mis-quote the late, great Magnus Pyke “if it moves, it’s biology, if it smells, it’s chemistry, and if it doesn’t work, it’s physics”. In the context of lab work, at least, there’s an element of truth in the physics comment. Many physics students have a problem with lab work. They just don’t like it. Attendance at lab sessions in the early years can be problematic. Student feedback can be less than stellar. And when the students reach the third and fourth year, when they get to choose a project, the strong preference is for theoretical projects rather than practical. Sadly, if you are trying to teach practical physics, the rot has set in well before they enter any of our labs. At A-level the experience of labs is often patchy, negative, or just plain non-existent. With budgets under pressure equipment is often limited or of poor quality, the teacher may be a non-specialist, and time may be in short supply. As a result the students enter with a huge range of experience. Some have done a significant number of hands-on experiments with reasonable quality kit. Many, however, arrive at university having simply watched the teacher do experiments and then used the results. The principle result is a general lack of confidence in handling equipment and instruments.

This situation was the prompt for the ‘Getting students to love labs’ summer internship project. There isn’t a lot we can do about their prior experience, but perhaps we can adjust our labs, and in particular the first year lab, to kindle that love of fiddling with kit that characterises the experimental physicist. For the past couple of months final year Physics student Amy Collins has been looking into the undergrad experience of our labs, and at how we can ignite in the students that love for experimental work. During the process she has spoken to the students themselves, through focus groups and surveys, to members of staff, academic, teaching and technical, with involvement in lab teaching, and to others with an interest in the area. Online surveys of both the students themselves and Physics teaching staff are proving particularly fruitful. (As a brief aside, offering the prize of a significant value voucher from a well-known online retail marketplace works wonders for response rate.) A number of strong themes are emerging. Two in particular, are that the students would like experiments with a much greater element of construction and discovery, and that they would like the space to fail while gaining confidence in experimental technique. The latter might mean putting off any form of assessment until well after the start of the academic year. To address the former point, Amy is developing ideas for new experiments that can be incorporated into the first year lab. Examples might be getting the students to build a simple anemometer, or rocket, or egg transporting buggy and getting them to do some physics with it. The timescale is short, but some changes may be possible in time for the new academic year. It’s more likely any implementation will be in 19/20. Watch this space!

Phil Hawker

Mathematical Sciences: e-learning software server trial

After negotiations with the local computing support and liaisons with central IT services access to a virtual server was provided as requested. I was able to install and have been maintaining this server over the past few months and two colleagues have already signed up to use it over the summer in preparation of their next year’s teaching materials. I am also speaking to colleagues further over this summer to promote the facility – though primarily future promotion will follow by sharing of resources created by myself and colleagues over this summer. Examples of created resources for future showcasing to colleagues will follow in the 2018/19 academic year, hopefully.

David Hodge

Mathematical Sciences: Maths Games Arcade

After securing funding in late 2017 to start up a collection of talks for students on the mathematics of games, teething problems with being able to spend the money through departmental procedures made a Spring 2018 start impossible, and then the strike action made it a bad idea to start up the sessions late-term. Thus the start of sessions have been delayed to Autumn of 2018. At least one other staff member speaker has been secured so far, and others have been contacted. I have also researched and purchased a small set of games to be the focus of the upcoming talks and have given thought to the advertising, but need to wait until the student timetables are released to be able to fix times of sessions to not clash directly with large lectures (especially first-year ones). Purchased games are SET(x3), Richochet robots, Qwixx and Kamisado(x2) and a further report will follow after Autumn term 2018.

David Hodge

Psychology: Communication of Feedback

This project extended upon work previously conducted within the School of Psychology concerning assessment feedback. Feedback has been a priority of the school for a number of years, despite much work in the area; however, there are still a number of ongoing developments. The current focus is to try and enhance students' assessment literacy and engagement with assessment and feedback. Students currently receive a lot of feedback, but we want to ensure students engage with the feedback they receive. As such, this project had two primary aims: (1) to gather more views on how students want to receive feedback (via focus groups), and (2) investigate current feedback technologies as a method to disseminate feedback and ensure students engage with the feedback they receive (via interviews with learning and technology consultants).

Focus groups and interviews were held with students ranging from years one to three. In each of the focus groups participants suggested that the current system of communication for exam results (i.e., an email containing a completed marking rubric and comments) worked well but noted that there are a number of potential issues such as students not accessing their emails and a desire for this to be linked to Moodle. Students were also provided with 10 possible interventions that they thought would be able to assist most in ensuring they engage with the feedback they receive. Two focus groups ranked a feedback portfolio (defined as a resource to help collate the feedback they receive) as the resource they would find most useful. Interviews were then held with learning and technology consultants to assess whether existing technologies could support the development of a feedback portfolio. A number of potential options have been identified including Toolkits and PebblePad. Discussions have also taken place with external colleagues who have already developed a feedback portfolio. Work is ongoing regarding the potential implementation of this resource.

Emma Whitt and Martyn Quigley

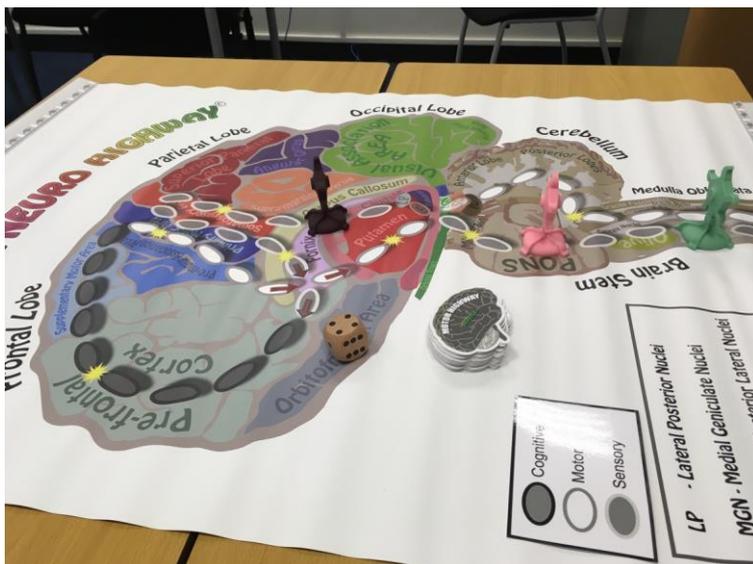
Psychology: Biological psychology game

The aim of this project was to examine a learning technique to improve first-year students' knowledge of biological psychology. Biological psychology is a core part of the psychology curriculum and covers the biological underpinnings of behaviour. We know from previous investigations that students find it difficult to learn neuroanatomy in particular. We wanted to test out whether or not using a game to learn neuroanatomy would be beneficial. There has been a surge in popularity of using game-based techniques and playful learning in higher education. This may be because games can provide a safe space where students are free to make mistakes and take risks.

A small-group seminar was devised in which a game was played. The game was called "take the neuro highway" and involved rolling a die to progress through the pathways in the brain, while answering questions about neuroanatomy along the way. The questions in the game related to material presented in lectures. Measures of game-specific knowledge, but also game-nonspecific knowledge were collected immediately

before, immediately after, and one week after taking part in the seminar. Performance was compared to a control group who took part in a seminar in which the students answered the questions in the game but did not play the game. Results showed that students answered more questions correctly after taking part in the seminar and this improvement was retained after one week. This improvement was seen across both the group who played the game and the control group. Additionally, after the seminar, all participants showed better memory of the game-specific material compared to the game-nonspecific material. Students said they enjoyed the seminar and would recommend it to other students. Staff reported that the students were engaged with the material and would recommend the seminar to colleagues.

Here we have demonstrated that taking part in a seminar about neuroanatomy helped to increase students' knowledge of that topic. We think this is a demonstration of the retrieval practice effect, which is well-known in the psychology literature as being an effective technique for learning.



These findings were presented and well-received at a recent conference (Enhancing Student Learning Through Innovative Scholarship) and attracted attention on social media. We have been in contact with the developer of the game who is interested in this work and in collaborating with us in the future.

Emma Whitt and Mark Haselgrove

Biosciences: Interactive learning Activity (workshops) – Understanding the Agricultural market in practice through simulation.

Prior to purchasing material two pilot activities were undertaken to ensure activities would run smoothly and have value to students.

D211A3 pilot activity: An interactive learning activity was conducted. The workshop was an hour long during normal workshop hours of the module. Students were engaged and put into practice their theoretical knowledge of market structure. Students took turns as sellers and buyers and practiced their decision making in pricing their goods, co-operating or not with their rival producers and marketing their goods. This interactive activity was repetitive, one round for each market structure (monopoly, oligopoly, monopolistic competition, perfect competition). The end of the workshop led to a vigorous discussion on decision-making, pricing policy and marketing and how those change according to the market structure.

Student comments: Students enjoyed this workshop. It gave them an opportunity to put into practice their knowledge and strengthen their understanding of the module material. Particular comments for the workshop were also written in the SET of this module with one student commenting: 'Well structured and planned workshop session that made learning about market structures, an uninteresting subject, exciting.'

D224A1 pilot activity: An interactive learning activity was conducted as the last session of the module. The aim was for students to see the theoretical concepts of agricultural marketing we had covered in the previous weeks put into practice. Two student volunteers were assigned as the “buyers” and the remaining students were the “agricultural producers/sellers”. Three rounds were conducted to show the effect of homogeneity in agricultural commodities on market power and the role of marketing. The buyers looked to purchase the goods for the lowest price and the sellers aimed to sell all of their produce (which was assumed to be perishable and could not be stored to the next round). In the first round, the producers all had homogenous goods and students quickly found that the buyers held the market power and there was no reason for them to favour one seller over another. In the next round, the sellers formed three cooperatives and were able to bargain with the buyers for a better price. Differences in transaction costs in the two rounds were also noted. In the final round, all students were given a mixture of goods and were able to buy and sell in order to gain their ideal basket of goods. This final round showed the effect of differentiation on market “prices”. At the end of each round and of the workshop, students were asked what they had noticed about the round (e.g. prices market power, transaction costs) and this led to students making connections with the course content from previous weeks.

Student comments: Students enjoyed this activity and were pleased to see how the theory they had learnt could be applied to agricultural businesses. This session took place after the SET and SEM surveys so specific comments have not been recorded.

Given both pilot activities were successful, purchase of material was completed and these interactive sessions will become a standard practice and integral component of the above mentioned modules. In addition, these workshops will be simplified in order to be included as admission events during Open Days, Visit Days and UCAS days.

Christie Sietto and Keely Harris-Adams

Biosciences: Development of a Career Planning Resource for MSc Students and Improving the Postgraduate Taught Student Experience

Background/Rationale

Every year over 1000 postgraduate taught (PGT) students register to study at the University of Nottingham with around 100 PGT students in The School of Biosciences. Over 50% of these students are typically international students who arrive with a variety of different experiences including language, cultural norms and expectations. It is well documented that alienation and isolation are common feelings for international students to experience and these feelings have the potential to dramatically impede the learning process and result in students disengaging from the learning experience. Likewise, home PGT students transitioning from undergraduate study or adapting to postgraduate level studies following a period of work may also struggle to adapt to the new learning environment.

Within the School of Biosciences, we have developed a Postgraduate Taught Support Programme which includes a range of optional and compulsory workshops and sessions specifically designed to aid the transition to postgraduate level studies (including UK culture, Teaching and Learning in the UK, How to make the most of your masters, study skills and revision techniques). The School also has a comprehensive careers presence on campus and feeds into the support programme. The aim of this project was to further understand challenges faced by our PGT students to help identify areas for improvement for support provision across the Faculty of Science.

PGT students were invited to be part of either focus groups or an on-line discussion group in Moodle. In both the focus groups and on-line forums PGT students were asked to contribute to 5 key areas:

- Why had they chosen the University of Nottingham?
- What were their initial concerns?
- Which aspects of MSc study have they found the most difficult?

- Health and Wellbeing?
- Careers and What Next?

So far, 15 students have contributed to the on-line discussion groups and 15 students attended two focus groups.

Key Findings

Regarding the choice of University of Nottingham, in both the on-line forum and focus groups reputation and the course content were two of the most commented on themes. In addition, prior knowledge of the university, staff or campuses were mentioned in both groups. The influence of living at home or alumni discount on costs were a factor in the focus groups as well as employability prospects.

In response to questions about concerns prior to arrival, the results from the forum and focus groups match another recently published survey showing that language difficulties, financial worries, accommodation, personal safety and difficulties with the programme are the 5 biggest areas of concern. Other areas raised by our students include concerns about the timetable, strikes and expectations.

The QAA of Scotland have recently completed a large project looking at what makes MSc study different from undergraduate study and have identified 7 themes where the level is higher than that of undergraduate study: abstractism, autonomy, depth, complexity, research and enquiry, professionalism and unpredictability. Findings from our focus group and on-line discussions all agreed with these themes with autonomy and the associated time management and complexity the most frequent concerns. In addition to depth, the breadth of study was also raised as a challenge as well as assumptions of prior knowledge and the pace which could be overwhelming.

All students were aware of Nightline and the support and resources available to help them with mental health and wellbeing whether through emails or posters or physical stalls.

Of all the online forum questions, the careers themed forum received the lowest number of responses. PGT students were asked for their feedback on an open careers resource. Many of the students were interested in a less wordy resource and identified just after the January exams as a good time for careers & employability related workshops.

Recommendations & Future Work

- Increase promotion of MSc courses in Biosciences throughout the Faculty of Sciences (and vice versa).
- Raise awareness to staff (academic and central timetabling) over timetabling concerns. Students with part time jobs may not be as flexible to respond to timetable changes
- Have clearly defined assumed prior knowledge for all MSc courses. Investigate the possibility of the creation of shared resources for prior knowledge for MSc courses (e.g statistics knowledge)
- Maintain good work in health and wellbeing support provision
- Explore the provision of pre-arrival information. This may be an excellent opportunity to address some of the anxieties associated with arrival and embarking postgraduate level studies
- Clarify expectations of masters level study to all new PGT students
- Introduce career themed workshops after January exams at the start of Semester 2

Lisa Coneyworth and Judith Wayte