



Centre for Higher Education Research & Practice

Perspectives on Pedagogy and Practice

For further information please contact:

Email: CHERP@ulster.ac.uk

Website: ulster.ac.uk/centrehep

Volume 7, October 2016

Perspectives on Pedagogy and Practice

Volume 7, October 2016

Centre for Higher Education Research & Practice

Perspectives on Pedagogy and Practice

Editorial Board

Ms Vicky Davies

Professor Karen Fleming

Professor Diane Hazlett

Dr Greg Kelly

Dr Sandra Moffett

Dr Anne Moorhead

Dr Amanda Platt (Chair)

Copyright

© 2016 Bill Byers, Cara Byrne, David Carson, Tony Donegan, Ursula Donnelly, Melanie Giles, Peter Green, Tim Harris, Ciarán Kearney, Gerry McAleavy, Julie McClelland, Moyra McClure, Marian McLaughlin, Agnieszka Martynowicz, Linda Moore, Judith Mullineux, Michael Pogue, Mark Poulter, Martin Smith, Andy Till, David Woods.

Published by Ulster University

Bill Byers, Cara Byrne, David Carson, Tony Donegan, Ursula Donnelly, Melanie Giles, Peter Green, Tim Harris, Ciarán Kearney, Gerry McAleavy, Julie McClelland, Moyra McClure, Marian McLaughlin, Agnieszka Martynowicz, Linda Moore, Judith Mullineux, Michael Pogue, Mark Poulter, Martin Smith, Andy Till, David Woods assert their rights to be identified as the authors of the articles in this work.

All rights reserved. Except as otherwise permitted under the Copyright Designs and Patents Act 1988, no part of this work may be copied, uploaded, transmitted, communicated to the public or adapted in any form or by any means without the prior permission of the copyright holder(s).

ISSN 2044-7388

Contents

| | |
|-----------|-----|
| Foreword | v |
| Editorial | vii |

Papers

Research Articles

| | |
|--|-----------|
| Evaluating the effectiveness of a blended PBL approach in the design and delivery of a research methods curricula Marian McLaughlin, Melanie Giles and Cara Byrne | 1 |
| Reflective learning through the study of autobiographical accounts: a module on Prison Lives Agnieszka Martynowicz and Linda Moore | 19 |
| Improving class attendance and student retention: it's a (Physio) SNAP! Mark Poulter | 33 |
| An empirical investigation into the impact of student engagement with a virtual learning environment upon first year module performance Peter Green, Tim Harris, Michael Pogue, Martin Smith and Andy Till | 51 |

Essay Article

| | |
|--|-----------|
| The Midwich Cuckoos Revisited: promoting learning through peer group work Bill Byers | 67 |
|--|-----------|

Descriptive Account

| | |
|---|-----------|
| Evaluation of optometry students' perceptions of hospital placements before and after feedback from ophthalmologists Julie McClelland and Moyra McClure | 79 |
|---|-----------|

Short Communication

- Improving students' essays:
a module for adaption and adoption** 97
David Carson, Ursula Donnelly and Judith Mullineux

Provocation Article

- A provocative learning strategy
to the rescue of numeracy** 103
Tony Donegan and Gerry McAleavy

Student Reflection

- 'To live and learn': personal reflections on adult learning for
postgraduates through the framework of meta-cognition** 111
David Woods and Ciarán Kearney

Foreword

I am pleased to have this opportunity to provide a short foreword to the seventh issue of the Centre for Higher Education Research and Practice's Journal, Perspectives on Pedagogy and Practice.

The University's new Strategic Plan charts the course for the University for the next five years that will take us to our fiftieth anniversary in 2034. At its heart is academic excellence – excellence in teaching underpinned by world-leading research. In shaping learning futures our vision is to provide high quality learning experiences through learner-centred pedagogies and research-led teaching. These help to prepare our graduates to excel in a diverse and interconnected global society, and to advance the region's cultural, social and economic development, thereby underscoring Ulster's strong civic mission.

Strategy-driven enhancements in learning, teaching and assessment practices have achieved incremental improvements over time as measured and evidenced in strong NSS results, improved retention, and non-continuation and enhanced graduate employability. However, in order to realise Ulster's ambitions as articulated in the new Strategic Plan, a more deliberative re-orientation will be required.

Building upon our success and reputation as a leader and innovator in education, there will be further opportunities to re-imagine, re-engineer and re-invigorate the student learning experience in the near future. With our students at the centre of research-led teaching practice, we will continue to equip our graduates to be adaptable and to thrive in their chosen fields. Over the next months the evolution and implementation of rejuvenated curricula design and assessment, distinctive to Ulster University, will:

- develop and enhance our students' creative and critical thinking skills and understanding of complex, contemporary and global problems;
- develop intellectual, collaborative and communication skills that will be further enhanced in their disciplinary studies;

- enable our learners to more fully participate as individuals and citizens in global, regional and local communities.

This is an unashamedly ambitious agenda which will require the enthusiastic participation of academic staff and students and the development of a central professional services model which is responsive, agile, facilitative, and light in terms of the administrative burdens placed on schools and faculties. The rewards for our graduates and for the University's standing and reputation both nationally and internationally are considerable, but so also are the risks of failing to respond to rising stakeholder expectations, and/or failing to embrace the opportunities and associated changes required to move forward in a challenging, and increasingly competitive, external HE environment. I would, therefore, encourage as many colleagues as possible to get involved as part of their professional reflective practice and scholarship of learning and teaching, and as reflected in the contributions in this volume, disseminate their findings in future editions of the journal.

More generally, however, I also hope that the Journal's readership will be inspired, encouraged and motivated to participate in the CHERP's activities in 2016/17 and consider disseminating relevant pedagogic research and practice through the Centre's Seminary series, conferences and Journal.

Finally, I would like to thank the members of the Editorial Board, and in particular, Amanda Platt, all of whom gave generously of their time and talents in bringing this seventh edition to press.

Professor Denise McAlister, CBE
Pro-Vice-Chancellor
Learning, Teaching and Student Experience

Editorial: Volume 7, October 2016

The spring of 2016, and the sixth year of journal, was an opportune time to plan ahead and consider how we might refresh Perspectives on Pedagogy and Practice, improve the processes and expand its reach. With that in mind, an Editorial Board planning meeting, facilitated by our Visiting Professor, Dr Torgny Roxa (Lund University), took place during April 2016. Staff with senior or principal fellowship of the HEA were invited to attend and, positively, a number of those who did so expressed an interest in working with us as members of the Editorial Board in the future. The input of colleagues at the interactive meeting provided valuable information with which to develop and enhance Perspectives on Pedagogy and Practice going forward. Four key issues arose from the discussions, namely the need to:

- increase the value and status of the scholarship of teaching and learning (SoTL) and pedagogic research within Ulster;
- expedite journal processes;
- make the publication available to the wider audience outside of the University;
- increase the level of staff engagement with the journal.

In relation to the latter point, it was noted that some staff lack confidence or are unsure of how to write for the SoTL and pedagogic genre; it was suggested that a combined strategy of awareness raising of the principles of SoTL and greater support and mentorship for authors might encourage greater numbers of staff to take the first steps towards writing in a scholarly way about their learning and teaching practice.

The last call for papers took place in 2014 and returned a significant number of contributions that have been published in this and the previous issue. It is also very pleasing to note that a small number of additional articles were forwarded to the Editorial Board for consideration during 2015/16, bearing testament to the appetite for the writing and sharing of practice. As in the previous edition, this issue includes research articles and a range of shorter contributions, such as a descriptive account and a provocation article. We are also pleased to include a student contribution.

In this seventh edition of *Perspectives on Pedagogy and Practice*, nine articles from internal contributors present different facets of learning and teaching practice from across Ulster University. Given the current period of organisational change and the imminent arrival of our new Pro-Vice-Chancellor for Education, a call for further contributions to the journal will not take place until Semester 2, 2016/17, at the earliest.

I would like to take this opportunity to express my thanks to the individuals, and in particular, the members of the Editorial Board, who have made the publication of this journal possible.

Dr Amanda Platt
Acting Editor and Chair of
the Editorial Board

Research Article

Evaluating the effectiveness of a blended PBL approach in the design and delivery of a research methods curricula

Marian McLaughlin, Melanie Giles and Cara Byrne

Background

How best to actively engage students in their learning has been the centre of much debate within Higher Education Institutions (HEIs), particularly with the movement away from 'traditional' direct-teaching methods to more collaborative student-centred approaches (Hannafin and Land, 1997). Problem-based learning (PBL) is one such pedagogy and is based on the philosophy of creating context-rich academic situations where students can work collaboratively on real world problems in order to develop their knowledge and problem-solving skills (Norton, 2010). In doing so, PBL adopts a constructivist approach to learning, and a number of objectives have been identified as being of primary importance when adopting this approach. These include problem solving and self-directed learning (Stepien and Gallagher, 1993), the use of 'real-life' problems, so that each task is relevant and contextual; collaborative learning, where students work in small groups, and the promotion of student centred learning with tutors only facilitating sessions (Savery, 2006).

The history of PBL within HEI spans over 40 years and it has been applied extensively across a number of subjects and disciplines. Traditionally, it has been implemented using small face-to-face groups; however, a growing body of literature recognises the important role technology has to play in supporting and enhancing PBL (Lo, 2009; Bridges et al., 2010). The implementation of a technology enhanced PBL curriculum has varied along two main trajectories; fully online PBL (oPBL) to satisfy the requirements of distance learning, and blended PBL (bPBL) which is in keeping with the traditional structure but offering the additional use of e-learning tools and online environments to share material. For example, in his blended approach, Donnelly (2010) used face to face tutorials in combination with synchronous and asynchronous communication tools

via the use of WebCT. It is recognised that the advantages of such an approach are that it allows students to have wider, faster and easier access to learning materials and assessments which do not have the restrictions of time and place, as with traditional classroom teaching (Baharun and Porter, 2009). What is not yet clear, however, is which specific e-learning tools are best suited to a bPBL approach. Research indicates that e-portfolios are ideally suited to bPBL, given their diverse way of assisting independent learning (Chambers and Wickersham, 2007). The diverse purpose of e-portfolios makes a common definition difficult, but Sutherland and Powell (2007, p.1) define them as ‘a purposeful aggregation of digital items – ideas, evidence, reflections, feedback, etc., which “presents” a selected audience with evidence of a person’s learning and/or ability’. This makes them ideally suited to PBL (Gulbar and Tinmaz, 2006) as they ‘provide a structure for learning, encouraging reflection and facilitating collaboration’ (Liu et al., 2009, p.209). Results found by the REFLECT initiative in the US (Barrett, 2004) and JISC (2008) in the UK also support their use in promoting and encouraging student engagement and motivation.

Such hybrid approaches to PBL have been adopted by a number of academics, yet the procedures and findings emerging from this research remain inconsistent. For example, the number and recommended nature of face-to-face sessions has varied from weekly two hour instructional sessions (Yeh, 2010) to only two face-to-face sessions for the purposes of final reflections and feedback (Woltering et al., 2009). In addition, researchers have varied in their attempts to combine PBL with bPBL, particularly in their web-based learning environments and their use of different e-learning tools. The growth in blended learning and problem-based learning makes these topics important for further research and evaluation. This is of particular importance in the field of psychology, specifically the delivery of research methods and statistics, where, typically, instructors have tended to adopt a passive text-lecture-exam format (Ball and Pelco, 2006), often resulting in reduced motivation and engagement (Marek et al., 2004).

Given the importance of research methods and statistics in taking forward a ‘research-teaching nexus’ within HE, it is essential that teachers

introduce experiential research-led learning opportunities so that students can learn more effectively. Research methods and statistics require students to develop skills rather than ‘facts’, as they involve answering a research question or testing a hypothesis, and so require students to integrate their knowledge of theory and methods. The centrality of the skills-based aspect of research methods teaching makes PBL highly suited to this area (Koutsopoulou et al., 2006). Further, the use of a blended PBL approach would serve to bring the advantages of both face-to-face classes and technical tools to support a wide range of learning models, and enhance the learning process (Woltering et al., 2009). In consideration of the limitations and recommendations from previous research, this study seeks to explore the effectiveness of a bPBL approach in enhancing the engagement and motivation of Year 1 Psychology students in their application of research methods and statistics. It also aims to explore the advantages and disadvantages of using a bPBL approach. It is hoped that in doing so it will prove useful to other educators responsible for the design and delivery of a research based curriculum or those interested in using a blended approach to support and enhance PBL.

Design and Implementation of the Blended PBL

It is acknowledged that if PBL is to be adopted as the pedagogy, it must also be accompanied by changes in the curriculum and in assessment (Barron et al., 1998). Historically, psychology research methods curricula at Ulster have tended to rely on passive didactic approaches to teaching, consisting mainly of lectures and instructional practical classes. This was considered to be contributing to the high fail rate on the module and leading to problems with attendance and motivation. In light of this, bPBL was introduced as a means of trying to improve motivation and encourage self-directed learning. This therefore required the design and delivery of new learning and assessment methods (Willis et al., 2002) including the need to combine PBL with a number of e-learning tools.

Consequently, one weekly PBL group tutorial, situated in an active environment (e.g. round tables, whiteboards, internet) facilitated by an academic member of staff was introduced. There were ten one hour tutorials in total and based on PBL recommendations, students worked in groups of approximately three to five (Norton, 2010). Given that

a bPBL approach was adopted, the orientation of the PBL workshops was designed using the identified sub-dimensions of both online and face-to-face PBL (Gürsul and Keser, 2009), namely: 1) problem identification, 2) known and unknown information about the problem, 3) task sharing, 4) data collection, 5) analysis, 6) generalising the solution of the problem, 7) cooperation in problem solving, 8) reporting, 9) feedback, 10) presenting the solution.

Students were required to document the best solution to three PBL activities, which replaced the end of year class test. They were formulated on the ideas of Norton (2010) and Hack (2013), as well as the contribution of the module instructors and a small cohort of Year 2 Psychology students. The activities were based on real-life research scenarios (Norton, 2010) with topics including hypotheses testing, research design, ethics and data analysis. Before being delivered, all of the PBL activities were pilot tested on a number of Year 2 Psychology students and their feedback on the activities and the e-learning tools were sought. To prevent backwash, students were also given the opportunity to choose which PBL activities they wanted to complete (Biggs, 2003). The weekly PBL tutorials were further enhanced with a one-hour Peer Assisted Study Session (PASS) (Tariq, 2005) with students being provided with help from Year 2 psychology students. Students had the opportunity to continually modify and develop their PBL activities during the tutorials and the PASS sessions and received formative feedback from the PBL tutors and their peers throughout the semester.

The PBL tutorials were also supported through the use of various e-learning tools on the Blackboard VLE, namely:

1. Multimedia case vignettes, which presented the problems to be solved, including links to electronic journals and key words to encourage relevant literature searches;
2. Discussion boards so that each member of the group could contribute and share their ideas or get help with a problem;
3. Announcements used by the instructors to communicate with group.
4. E-portfolios where the group could share and collect text or multimedia resources.

Students were also encouraged to bring along their laptops, android devices etc. to the PBL tutorials in order to search for relevant literature/resources to help them solve their problems (Barrows and Tamblyn, 1980). At the end of the semester, each student then individually submitted an e-portfolio consisting of their three PBL activities (shared only with the instructors).

Methods

Design

In consideration of the research aims, this study adopted a mixed method evaluative design that was conducted over two concurrent stages. This was to allow for a holistic evaluation and a better understanding of the learning process and the impact of bPBL.

Stage 1

Aim

To explore whether a bPBL approach served to enhance the motivation and engagement of Year 1 Psychology students to their application of research methods and statistics.

Design

A pre- and post-evaluative questionnaire design was used to measure the outcome variables of engagement and motivation. Questionnaires were distributed at two time points: time point 1 (pre evaluation stage) - week 1; time point 2 (post evaluation stage) - week 12.

Participants

All of the students enrolled on a first year psychology research methods module (n = 97) were asked to complete pre- and post- questionnaires. Recruitment was conducted by an independent moderator (CB) during the first scheduled lecture of the semester. In all, 40 students completed the questionnaires at both time points (week 1; n = 60 and week 12; n=51).

Questionnaires

Participants completed the following measures at time point 1 (week 1) and time point 2 (week 12):

1. The 23-item Student Course Engagement questionnaire (SCEQ) (Handelsman et al., 2005) was used to measure engagement. Response options range from 1 (not at all characteristic of me) to 5 (very characteristic of me) assessing four dimensions of student engagement: skills engagement, participation/interaction engagement, emotional engagement and performance engagement. Scores were computed by taking the mean of the items to create each engagement dimension;
2. The 31-item Motivated Strategies for Learning Questionnaire (MSLQ) (Duncan and McKeachie, 2010) was used to assess intrinsic, extrinsic and intrinsic motivation. Each item was rated using a 7-point Likert scale (1 = Not all true of me to 7 = Very true of me) with total scores then computed by taking the mean of the items to create each motivation dimension.

Both of these scales have been previously used and validated among university students. Demographic questions including age, gender and student ID number were also included.

Data Analysis

The data was analysed using both descriptive and inferential statistics, with a series of repeated measures of analysis of variance (ANOVA) conducted to explore the differences in mean scores on engagement and motivation before and after the bPBL tutorial programme (week 1 and week 12).

Stage 2

Aim

To explore from the students' perspective the advantages and disadvantages of using a bPBL approach.

Design

Two focus group discussions were conducted with a sample of Psychology students registered on the same research methods module as those recruited in stage 1 of the study. Two focussed discussions were conducted by an independent moderator (CB) in order to allow for a diversity of views on the topic (Morgan, 1994).

Participants

Each focus group contained approximately 4-8 participants (n=9) (Morgan, 1994). Participants were recruited using convenient sampling techniques by an independent moderator (CB) during a scheduled Year 1 lecture. The moderator introduced the project and asked for participants to volunteer their time to take part in one focus group discussion. Those volunteering provided the moderator with their contact details. One week later they were emailed to inform them of the date, time and location of the discussion.

Data Analysis

The focus group transcripts were analysed using Qualitative Content Analysis techniques (Miles and Huberman, 1994). This approach to such analysis requires comparison of themes that involves three distinct stages: data display; data reduction; and data interpretation. Firstly, the data was thematically content analysed by an independent researcher, who, firstly, read and re-read the transcripts in order to become familiar with, and immersed in, the data. Data was then 'reduced' and organised into emerging themes and subthemes. Following this, the data was further analysed inductively by the research team until a common consensus regarding the themes and subthemes was reached. This helped to improve the inter-coder reliability of the analysis process.

Ethics

Ethical approval to conduct the study was achieved by the School of Psychology Research Governance Filter Committee. Participants were given verbal and written information regarding the aims of the study and were asked to complete a consent form to indicate their willingness to participate in the study. The students were informed that participation in both phase 1 and 2 was completely voluntary and that they could withdraw their data from the study at any time. Further, all data was collected by an independent moderator (CB) to reduce potential bias and perceived coercion.

Evaluation Results

Stage 1: Quantitative Pre and post evaluation questionnaire

A series of descriptive and inferential statistics were conducted to

explore the differences in mean scores before and after the bPBL tutorial programme. Table 1 illustrates the mean scores and standard deviations at time point 1 and 2 on the various sub-dimensions of engagement and motivation.

| | Time point 1: Week 1 | | Time point 2: Week 12 | |
|-------------------------|-----------------------------|--------------|------------------------------|--------------|
| Variable | Mean | SD | Mean | SD |
| Skills engagement | 34.4 | 6.13 | 33.4 | 5.63 |
| Participant Interaction | 18.5 | 4.29 | 16.4 | 4.13 |
| Performance | 11.8 | 2.10 | 11.7 | 1.99 |
| Emotional | 19.7 | 3.54 | 18.2 | 3.46 |
| Total Engagement | 84.5 | 12.71 | 79.7 | 12.03 |
| Intrinsic Motivation | 20.3 | 3.59 | 19.8 | 3.13 |
| Extrinsic Motivation | 23.02 | 3.35 | 23.5 | 3.35 |
| Atrinsic Motivation | 34.5 | 4.86 | 33.4 | 4.60 |
| Total Motivation | 166 | 18.07 | 159 | 15.39 |

Table 1: Means and standard deviations of study variables at time point 1 and 2

As displayed in Table 1, the figures highlight a reduced difference in the mean scores on all of the sub-dimensions of engagement and motivation from the beginning of the bPBL tutorial programme and the end.

Results from a series of repeated measures ANOVA illustrate that these differences were statistically significant, and indicate that the students' levels of engagement ($f(1, 39) = 10.21, p < 0.01$) and motivation ($f(1, 30) = 12.02, p < 0.01$) were higher at the beginning of the semester prior to the introduction of the bPBL tutorial programme than at the end.

| Variable | Mean | | F | Sig |
|------------|--------|---------|-------|-------|
| | Week 1 | Week 12 | | |
| Engagement | 84.5 | 79.7 | 10.21 | 0.003 |
| Motivation | 166 | 159 | 12.02 | 0.001 |

Table 2: Mean scores at time point 1 and 2

Stage 2: Qualitative focus group discussions

The aim of the focus group discussions was to elicit the views of students with regards to the advantages and disadvantages of a blended approach to PBL. Table 3 outlines the various themes and sub-themes that emerged from the transcripts.

| Themes | Subthemes |
|---------------|--|
| Advantages | <ul style="list-style-type: none"> ∞ Flexibility ∞ Accessibility ∞ Stored repository ∞ Learner support ∞ Collaborative learning ∞ Opportunities to ask questions |
| Disadvantages | <ul style="list-style-type: none"> ∞ Learning anxiety ∞ Time spent on eLearning tools ∞ Lack of training ∞ Continuity in assessments |

Table 3: Advantages and disadvantages of using a bPBL approach

Advantages

The students cited a number of advantages of the e-learning support tools. These included flexibility, the storage and management of course material and the learning support:

‘It (e-portfolio) is a handy thing to have as everything is organised in the one place ... I think the idea of the e-portfolios is good as you can always go back over your work and you will have them again for other assignments in the future...the discussion groups were also good as sometimes I needed help with things’.

They also enjoyed the face-to-face tutorial sessions, as these gave them the opportunity to clarify any problems they were having, as well as the collaborative partnerships they were involved in:

‘The PBL sessions helped me to get my head around research methods which I struggled with in the first semester. Also I think even just splitting up into groups really helped us get to know each other and it certainly helped me to feel more comfortable asking questions’

In addition to this, they enjoyed completing the PBL scenarios and the relevant ‘real life’ skills they were developing:

‘I particularly enjoyed the PBL tutorials as it allowed us as students to have an insight into what would be required of us in third year and our future careers when designing our own research reports. I liked how it was different to writing the standard lab report as the PBLs were more inventive and creative and helped to develop our problem solving skills’.

Disadvantages

On a more negative note, a number of drawbacks were also mentioned, all of which centred on anxiety surrounding the technology and the time spent developing and up-loading files to the e-portfolios:

‘I don’t like technology. I prefer to print it off and you know it’s gone, it’s been put in your wee folder and someone has it whereas when you send it online its up in the air and you don’t know whether it’s been sent properly or not and that really worries me...plus the time that you spend collecting things and putting them into a repository could go into your work and make your work better’

‘And because it was a new piece of work and something we had never done before it was a hassle to worry about a new way to submit something like it was completely new and then you were just worrying’

Despite these drawbacks, the students suggested a number of ways in which the bPBL approach could be improved. These included organising computer-based induction sessions to improve skills and confidence and the continuity of this type of assessment in other modules of the degree programme:

‘You get so much information in the first week and second week ...so I definitely think a day actually sitting in front of a computer with somebody to show you what to do would be beneficial’

‘It probably would have been better if it (e-portfolio) was introduced in the first semester cause then I would have trusted it a bit more in the second and it wouldn’t have been a problem’.

Conclusions

This study sought to explore the effectiveness of a bPBL approach in enhancing the engagement and motivation of Year 1 Psychology students in their application of research methods and statistics. It also aimed to explore the advantages and disadvantages of using a bPBL approach. The results from the quantitative data illustrate that the students’ levels of engagement and motivation were in fact higher at the beginning of the semester before the introduction of the bPBL tutorial programme than at the end. The students in their qualitative comments during the focus group discussions outlined a number of reasons which could explain this finding. This is the only first year module within the programme which uses a blended approach, thus the students had no previous training or learning experiences of the various e-learning tools, particularly the e-portfolios. This could have, in fact, served to increase their anxiety levels surrounding their assessment, which are already high on statistics and research methods modules such as this (Ziedner, 2001). Further, Akerlind and Trevitt (2010) ascertain that students’ adverse reactions to such innovations are not uncommon and should, in fact, be anticipated.

Trying something new typically produces feelings of discomfort or anxiety (Woods, 1991) and as the students highlighted in the focus group discussions, the time spent acquiring new skills can take away from time spent on content, which can also lead to the perception of learning less (Woods, 1991) and increased levels of stress (Fisher, 1994). In light of these comments and based on the recommendations of Akerlind and Trevitt (2010), a number of strategies will be introduced in an attempt to increase student confidence and skill in using the e-learning tools. This includes communicating to students as clearly as possible what will be expected of them; giving practical demonstrations for the activities required and having an induction programme. Blogs will also be incorporated as a form of social support and as alternative method of formative feedback (JISC, 2008).

The qualitative findings suggested the need for adopting a blended approach across other modules within the degree programme. This is encouraging, and mirrors the recommendations for educators to scaffold new flexible ways of learning into the curriculum to cater for the learning styles of the current technologically intelligent student body (Hack, 2013). The students also recognised and valued the practical nature of the PBL activities and the opportunity to work in small face-to-face groups on 'real life problems'. The development of professional skills, including critical thinking and problem solving is central to the employability agenda within HEIs, given their important role in producing skilled and employable graduates. Currently, the over-reliance on a passive teaching style adopted by many academics may be preventing students from developing key professional skills often acknowledged as integral to their training (Boud and Feletti, 1991; QAA, 2007). Self-directed, critical thinking, problem solving and ICT are all key skills required for professional life, central tenets of PBL and blended approaches to learning (Barrett, 2004; Savery, 2006). Further evaluation of research-oriented and research-based bPBL is therefore needed, given the importance of taking forward a 'research-teaching nexus' within HEIs. Research which seeks to explore which specific e-learning tools are best suited to a research based bPBL approach is particularly warranted. Despite the small sample size and the lack of a comparator group, it is hoped that the methods used in this study may nonetheless prove useful for academics in their

own endeavours to design and evaluate research based bPBL approaches to learning and teaching. This in turn could also help in the creation of a collaborative learning environment and the transition in Year 1 (Donnelly, 2004), well known predictors of student satisfaction and retention (Thomas, 2012).

References

Akerlind, G.A. and Trevitt, C.A. (1999). Enhancing self-directed learning through educational technology: When students resist change. *Innovations in Education and Training International*, 36(2), 96-105.

Baharun, N. and Porter, A. (2009). The use of technology to support student learning. *14th International Conference on Education. University of Brunei, 21-24 May 2009. Brunei; Darussalam.*

Barron, B. J. S., Schwartz, D. L., Vye, N. J., Moore, A., Petrosino, A., Zech, L. and Bransford, J.D. (1998). Doing with understanding: Lessons from research on problems and project-based learning. *Journal of the Learning Sciences*, 7(3/4), 271–311.

Barrett, H. (2004). *Electronic portfolios as digital stories of deep learning: emerging digital tools to support reflection in learning-centered portfolios.* <http://electronicportfolios.org/digistory/lepstory.html> (Accessed: 8 May 2014).

Biggs, J. (2003). *Teaching for quality learning at university: what the student does.* Maidenhead: Open University Press/Society for Research into Higher Education.

Boud, D. and Feletti, G. (1991). *The challenge of problem-based learning.* London: Kogan Page.

Chambers, S. M. and Wickersham, L. E. (2007). The electronic portfolio journey: A year later. *Education*, 127(3), 351–360.

Ball, C.T. and Pelco, L.E. (2006). Teaching research methods to undergraduate psychology students using an active cooperation learning approach. *International Journal of Teaching and Learning in Higher Education*, 17(2), 147-154.

Biggs, J., Kember, D. and Leung, D. Y. P. (2001). The revised two-factor Study Process Questionnaire: R-SPQ-2F. *British Journal of Educational Psychology*, 71, 133-149.

Bridges, S.M., Botelho, M.G. and Tsang, P.C.S. (2010). PBL 2.0: Blended Learning for an interactive problem-based pedagogy. *Medical Education*, 44(11), 1131.

Donnelly, R. (2010). Harmonizing technology with interaction in blended problem-based learning. *Computers & Education*, 54, 2, 350-359.

Donnelly, R. (2004). An Online Problem-based Learning Approach in Higher Education. *Encyclopaedia of International Computer-based Learning*, 1-9.

Duncan, T. G. and McKeachie, W. J. (2010). The Making of the Motivated Strategies for Questionnaire. *Educational Psychologist*, 40, 117-128.

Fisher, S. (1994). *Stress in academic life*. Milton Keynes: SHRE and Open University Press.

Gulbahar, Y. and Tinmaz, H. (2006). Implementing project-based learning and e-portfolio assessment in an undergraduate course. *Journal of Research on Technology in Education*, 38(3), 309–327.

Gürsul, F. and Keser, H. (2009). The effects of online and face to face problem based learning environments in mathematics education on students' academic achievement. *Procedia Social and Behavioral Sciences*, 1, 2817-2824.

Hack, K. (2013). Using Web 2.0 technology to enhance, scaffold and assess problem-based learning. *Journal of Problem-based Learning in Higher Education*, 1(1), 230-246.

Handelsman, M.M., Briggs, W.I., Sullivan, N. and Towler, A. (2005). A measure of college student course engagement. *The Journal of Educational Research*, 98 (3), 184-191.

Hannafin, M.J. and Land, S.M. (1997). The foundations and assumptions of technology enhanced student centred learning environments. *Instructional Science*, 25, 167-202.

Heppner, P. and Petersen, C. H. (1982). The development and implications of a personal problem solving inventory. *Journal of Counselling Psychology*, 29, 66-75.
Jisc (2008). *Effective Practice with e-portfolios: Supporting 21st Century Learning*. <http://www.jisc.ac.uk/media/documents/publications/effectivepracticeeportfolios.pdf> (Accessed 8 May, 2014).

Koutsopoulou, G, Todd, Z. and Forrester, M. (2006). *Teaching qualitative research methods at undergraduate level. Survey results of current provision in UK*

psychology departments. http://www.psychology.heacademy.ac.uk/html/qual_res_methods.asp (Accessed 16 October 2013).

Liu, W.C., Liao, A.K. and Tan, O.S. (2009). E-portfolios for problem-based learning: Scaffolding, thinking and learning in pre-service teacher education in Tan, O.S. (Ed.). *Problem-based learning and creativity*. Singapore: Cengage Learning, 205-225.

Lo, H.C. (2009). Utilizing Computer-mediated Communication Tools for Problem-based Learning. *Educational Technology & Society*, 12(1), 205–213.

Marek, P., Christopher, A. N. and Walker, B. J. (2004). Learning by doing: Research methods with a theme. *Teaching of Psychology*, 31, 128- 131.

Marsick, V. J. (1988). Learning in the workplace: The case for reflectivity and critical reflectivity. *Adult Education Quarterly*, 38(4), 187–198.

McNaught, C. and Lam, P. (2005). Building an evaluation culture and evidence base for e-learning in three Hong-Kong universities. *British Journal of Educational Technology*, 36 (4), 599-614.

Miles, M., and Huberman, M. (1994). *Qualitative data analysis: an expanded sourcebook* (2nd Ed). London: Thousand Oaks.

Norton, L. (2010). *Psychology Applied Learning Scenarios (PALS). A practical introduction to problem-based learning using vignettes for psychology lecturers*. Liverpool: LTSN Psychology.

O' Mahony, J., Thomas, L. and Payens, J. (Eds) (2013) *Building inclusivity: engagement, community and belonging in the classroom – interviews with Rowena Arshad, Vicky Gunn, Ann-Marie Houghton and Bob Matthew*. York: Higher Education Academy. https://www.heacademy.ac.uk/resources/detail/resources/detail/inclusion/EandD_building_inclusivity_videos (Accessed 25 October 2014).

QAA (2007) *Code of practice for the assurance of academic quality and standards in higher education – Section 9: Work-based and placement learning*. 2nd ed. Gloucester: The Quality Assurance Agency for Higher Education. <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Pages/Code-of-practice-Section-9.aspx> (Accessed 26 July 2014).

Reeves, T. C. and Hedberg, J. G. (2003). *Interactive learning systems evaluation*. Englewood Cliffs, NJ: Educational Technology Publications.

Savery, J.R. (2006). Overview of Problem-based Learning: Definitions and Distinctions. *Interdisciplinary Journal of Problem-Based Learning*, 1(1), 9-20.

Sutherland, S. and Powell, A. (2007). CETIS SIG mailing list discussions. <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A1=ind0707&L=CETIS-PORTFOLIO#3> (Accessed: 13 April 2015).

Stepien, W.J. and Gallagher, S.A. (1993). Problem-based learning: as authentic as it gets. *Educational Leadership*, 50(7), 25-28.

Tariq, V. N. (2005). Introduction and evaluation of peer-assisted learning in first year undergraduate bioscience. *Bioscience Education E-Journal (BEE-j)*, 6.

Thomas, L. (2012). What works? Facilitating an effective transition into Higher Education. *Widening Participation and Lifelong Learning*, 14, 4-24.

Trowler, V. (2010) *Student engagement literature review*. Higher Education Academy. https://www.heacademy.ac.uk/resources/detail/evidencenet/Student_engagement_literature_review (Accessed 25 October, 2014).

University of Ulster (2013). *Learning and Teaching Strategy (2013/14-2017/18)*. http://www.ulster.ac.uk/centrehep/teaching_and_learning_strategy/Learning_TeachingStrategyGraphicVersion.pdf (accessed 13 January, 2013).

Vallarand, R.J., Pelletier, L.G., Blais, M.R., Briere, N.M., Senecal, C. and Vallieres, E.F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic and amotivation in education. *Educational and Psychological Measurement*, 52, 1003-117.

Willis, S.C., Jones, A., Bundy, C., Burdett, K., Whitehouse, C.R. and O'Neill, P.A. (2002). Small-group work and assessment in a PBL curriculum: a qualitative and quantitative evaluation of student perceptions of the process of working in small groups and its assessment. *Medical Teacher*, 24(4), 495-501.

Woltering, V., Herrler, A., Spitzer, K. and Speckelsen, C. (2009). Blended learning positively affects students' satisfaction and the role of the tutor in the problem-based learning process: results of a mixed method evaluation. *Advances in Health Science Education*, 14, 725-738.

Woods, D. (1991). Issues in implementation in an otherwise conventional programme. In Boud, D. and Felletti, G. (Eds) *The challenge of problem-based learning*. London: Kogan Page, 173-180.

Yeh, Y.C (2010). Integrating collaborative PBL with blended learning to explore preservice teachers' development of online learning communities. *Teaching and Teacher Education*, 26.

Zeidner, J. (2001). Statistics and mathematics anxiety in social science students: some interesting parallels. *British Journal of Educational Psychology*, 61, 319-328.

Marian McLaughlin is a Senior Lecturer in Psychology at Ulster University. She is also a Fellow of the Higher Education Academy.

Melanie Giles is a Professor and Head of School of Psychology at Ulster University. She is also a Senior Fellow of the Higher Education Academy.

Cara Byrne is a BSc Hons Social Psychology student at Ulster University. She recently completed a placement as PASS Student Officer within the School of Psychology.

Research Article

Reflective learning through the study of autobiographical accounts: a module on Prison Lives

Agnieszka Martynowicz and Linda Moore

Introduction

'We don't have time to read whole books', a final year undergraduate explained to Birkbeck professor, Orlando Figes; 'There are quicker ways to get the information needed for an essay, and other things to do at university' (Times Educational Supplement [TES], 23 May 2014). Noting that modern students work at least as hard as their predecessors, Figes responded by developing a website with free access to extracts from his books and articles, hoping to 'steer students towards in-depth reading of books, not replace them'. How many times has each of us heard colleagues complaining that 'students just don't read'? Yet, assignment reference lists get ever longer and students are expected to glean information from a wide range of sources. While agreeing with Figes on the pedagogical importance of the virtual learning environment, the authors wondered whether there would be merit in introducing a module on the criminology and criminal justice degree based on reading and reflecting on autobiographical accounts. Accordingly, they developed *Reflections on Prison Lives* (PUP536), a module focused primarily on prisoner, ex-prisoner and prison officer memoirs both in book form and as portrayed through film.

An added motivation for developing *Reflections on Prison Lives* was the difficulty of teaching about prisons. Students taking *Prisons, Punishment and Power* (PUP531) have often expressed the desire to see inside a prison, but with more than 100 students taking the module each year, this would present a huge practical challenge, as well as raising difficult ethical issues. The carceral tour is controversial among penologists: advocates argue that experiencing such an environment enhances learning, more so than simply reading about it. Smith (2012, p.63) proposes that prison tours offer the opportunity to 'maximise the merging of theory with practical experience'. However, critics such as Piché and Walby (2010,

p.578) argue that prison visits are routinely ‘so heavily scripted and stage-managed’ that benefits to students are unlikely ever to outweigh the ‘danger of them increasing the pains and indignities imposed on prisoners.’ In light of this critical literature, and considering experiences from their own research practice, the authors of the current article concluded that the potential benefits for students would not justify the intrusion into prisoners’ privacy and dignity.

Reflections on Prison Lives ran for the first time from February to June 2014. It was co-designed by the authors and in its first year taught by one of the authors (Agnieszka Martynowicz), while the authors co-taught the module in 2015 and 2016. To further enhance students’ understanding, individuals with experience of confinement or of working within the penal system were invited to visit class and reflect on autobiographical material alongside the students, thus bringing the ‘inside’ to the University.

The analysis below focuses on the delivery of the module in its first year and includes findings from research conducted with students. The findings are of relevance not only to criminologists, but also to other educationalists with an interest in encouraging student enjoyment of reading and in reflective learning practices. Before reporting on the research findings, we consider the reflective and inclusive pedagogy which underpinned the module design, delivery and methods of assessment.

Creation of a reflective and inclusive learning environment

The term ‘reflective learning’ is most often used to describe the process whereby students learn through a combination of action and reflection (Schon, 1983). As expressed by Kolb’s (1984) ‘learning cycle’, the learner has an experience which they reflect upon, plan how they might do things differently and implement appropriate change. Hedberg (2009, p.12) emphasises the need within reflective practice for a pace which facilitates attentive learning, providing an oasis from the ‘frantic action-biased world in which our students live and work’, and allowing for ‘consideration, contemplation, speculation, musing, and pondering’ and ‘making sense of the world’ (ibid).

Moon (2004) advises that students embarking on reflective study should consider their own negative or positive feelings towards the issue under investigation, relevant alternative viewpoints and any ethical or social issues involved. She highlights the importance of post-task reflection, where students consider whether their judgement has changed as a result of the process. Within reflective practice, consideration must also be given to appropriate methods of assessment. For Scott (2010, p.437) portfolios are effective, as they facilitate students in considering 'how they think about their own learning' but demand considerable effort for students and for staff (ibid).

The authors sought to create an inclusive environment, bearing in mind that the significant expansion of higher education has resulted in a more diverse student population (Thomas and May, 2010). Pino and Mortari (2014) note that studies on the needs of students with specific learning difficulties indicate a clear preference for interactive teaching styles, while Ryan's (2007, p.439) Australian study finds that dyslexic students struggle with 'the reliance on large amounts of reading and writing for most assessment tasks'. Meanwhile, Reid (2013, p.10) advises that students with specific learning needs should be afforded 'some control over their (learning) environment' which will 'help to give them responsibility for their own learning.'

In view of the pedagogical literature discussed above, the authors developed the module on the basis that the class would be delivered in an interactive style with sufficient time allocated for reflection and discussion; students would have a high level of choice about the form and content of material used for assignments; visual material such as film would form an alternative to the written word; and formative feedback would be available. The authors were keen to be 'critically reflective' teachers (Larrivee, 2000) and so built in research on student experiences. The findings from the research on the first year of the module (in the 2014 academic year) are discussed below, documenting student experiences of engagement with the material; the reflective learning methods; and methods of assessment.

Reflections on Prison Lives: the Module

To join *Reflections on Prison Lives*, students are normally required to have completed the module *Prisons, Punishment and Power* (PUP531) which covers penological theory and core issues regarding incarceration, with the intention that this will provide them with a theoretical and knowledge base to assist with their reflection on prison memoirs. It was felt that a relatively small number of students (maximum 30) would allow for more informality, a slower pace and more time to build trust with staff and the peer group. In the first year there were 24 students, which proved ideal. The module was organised in thematic sessions involving the study of material from a range of jurisdictions, written by male and female prisoners, people currently imprisoned and ex-prisoners, politically motivated prisoners, people wrongfully convicted or challenging their conviction and prison officers and professionals working in the penal environment. Although some students may have prior knowledge of imprisonment through the experiences of families or friends, either as prisoner or prison officer, most will never have entered a prison. The concept of reflective learning involved students being asked to read, watch or listen to autobiographical works, apply relevant theoretical concepts to the material and also reflect upon their own emotional and intellectual responses to the issues raised. By adopting a reflective approach, the authors hoped that students would not only build their knowledge of theory and practice, but also that they (and the tutors) would be tested in their personal beliefs, ideas and prejudices and presumptions.

A variety of teaching methods was used in class, including short tutor-led presentations (mini-lectures), small group discussions, focused exercises, 'slow reading', watching and analysing films and documentaries. Students were provided with theoretical material, for example, chapters from Sykes (1958) and Goffman (1961), and used these in class to analyse the experiences of individual prisoners as reflected in the memoirs. For example, the class watched *A Sense of Freedom* (1979), the film based on Jimmy Boyle's memoirs, and discussed how Sykes' 'pains of confinement' might be relevant to Boyle's experiences. A local blog author came to discuss with students his prior experiences of incarceration in Northern Ireland, and students had the choice of using his blog for an

assignment. They were also encouraged to attend relevant events in the community by authors of works they were studying, such as a talk by two former death-row prisoners, Sunny Jacobs and Peter Pringle, in the Clonard Monastery in Belfast on 21 March 2014.

Students were encouraged to enjoy the experience of reading books from front cover to the final page or to watch films from start to end. In addition to the University library, the school supported the purchase of a small 'library' of books which students could read at their leisure, and they were also directed towards buying material cheaply, for example, for the Kindle, or from second hand sources where prisoner autobiographies were available for only a few pence.

Assessment was in the form of a portfolio, providing a way for students to document their learning journey. In the first year this comprised four 500 word pieces, for which students were required to analyse a short story, book, film and blog (some selected by the tutors and some by the students) as well as a 3,500 essay focusing on a book/s or film/s of their choosing, and with students constructing the essay title themselves. Assignment reading lists were deliberately restricted to allow space and time to reflect more deeply on the material. Thus, the reading list for an assignment might have only two references, a theory chapter and an individual memoir. Students were encouraged to reflect throughout on their own feelings about the material and to include this within assignments. The tutors provided formative feedback on drafts of the short pieces, and students had the opportunity to discuss their work with peers before final submission.

Research on the Module

In year one, a research session was built into the final class to capture student reflections on the module. Approval was granted through the Ulster University research ethics process. All participation was voluntary. Students were explicitly advised that they were not being asked to evaluate the quality of teaching (this would be done through the University's on-line evaluation tool) but rather should reflect on their own learning experiences and how these were influenced by the teaching

methods and module design. The research utilised a two-step approach. Firstly, students were surveyed to provide written feedback (18 out of 24 responded, constituting 100% of those who were present at the session, and 75% of all those enrolled). To encourage open reflection, and students were asked only for ‘compliments’ and ‘suggestions’, leaving the focus of the feedback to their own decision. These surveys were anonymised to ensure student confidentiality.

This was followed by a focus group conducted by one of the authors (Martynowicz) with seven students (29% of all of those enrolled) to allow for more in-depth discussion. Participants in the focus group self-selected, and separate consent was sought for this. Given the small size of the focus group, the authors acknowledge the potential for bias, as students with more positive experiences and stronger opinions may be more inclined to participate (Rovai, Baker and Ponton, 2014). However, as the focus group data was analysed together with the survey responses, showing positive outcomes overall, we are confident that the size of the focus group did not significantly skew the results. In the focus group students were asked to reflect on their emotional and intellectual engagement with the material; on the teaching and assessment methods used, and on their experiences of writing in a reflective manner.

Discussion of findings

Both the survey and the focus group found that students’ views on the module were overwhelmingly positive. There was little disagreement, and the views expressed in the discussion below are reflective of the overall consensus. Students said that the module *Prisons, Punishment and Power* had already sparked their interest in the topic. While some in the group did not think it was necessary to take the module as a pre-requisite, others were clear that the two modules worked well in tandem. Students commented that the process of applying theory to the individual accounts had given them a much greater understanding of both the theory and the experience of imprisonment. As this student reflected:

‘sometimes then it’s very hard to ... see the theory in practice. But by reading ... biographies ... from people who actually experienced prison first hand... suddenly you realise that it’s not just theory on a piece

of paper, this is very much a reality for ...an awful a lot of prisoners’
(Focus group, Student 3).

Some had previously found theory to be difficult and abstract, but found it more accessible when applied to an individual’s experiences:

‘You see, I do love reading but you see when you’re reading for theory... you’d be getting your head melting ‘cause that would be like ‘bla, bla, bla’ but this [applying theory to the memoir], you get into it...’
(Focus group, Student 4)

Students appreciated the diverse and interactive teaching methods, a topic which was specifically referred to by eight students in the survey responses and by focus group participants:

‘You left class every week really feeling that you learned something. ...I preferred this way of teaching rather than the traditional lecture seminar format’
(Anonymous written student feedback).

‘It’s not like you are sitting in a lecture ... you [the tutor] stand at the slide show, press a button and we take notes. We’re actually openly engaging in discussion about it and I find that a much more rewarding way of learning actually, it seems to sink in because it makes you think about it an awful lot more...’
(Focus group Student 3)

They commented that working in a smaller class provided the opportunity to voice their views, and to have these tested in a respectful way by others. Students also welcomed the choice of reading materials for assignments and self-selection of essay title, issues raised by nine students in the surveys and also within the focus group. The following comments are reflective of the general view:

‘Keep the concept of letting the student do their own final essay, that autonomy helps motivate a personal interest in the subject they wish to explore’
(Anonymous written student feedback).

‘I liked the fact that we could read the books that we were actually interested in’

(Anonymous written student feedback).

Engagement with prisoner narratives encouraged some students to conduct more in-depth research and thereby guide their own learning. The memoirs sparked strong emotional reactions in some students, as evidenced by this exchange during the focus group:

Tutor: ‘Did you have any emotional reactions to what you were reading?’

Group: ‘Yes, yeah.’

Student 2: ‘I actually cried...’

Student 4: ‘Yes, so did I’

Student 2: ‘...reading the Sunny Jacobs book, and then I had to skip... whenever her parents died, I cried, I just sobbed... and then whenever I knew that her husband’s going to die, I just skipped through pages, I was like, no, I am not crying anymore, that’s ridiculous, it’s just like a module book, I’m not doing it.’

...

Student 3: ‘[about a different book] The fact that the judge actually sent them to prison for something they had no idea about. Oh, that book fried my head! I was just ...absolutely raging reading a book! I was like ‘Oh my god!’

Those in the focus group agreed that the emotional engagement played a significant part in their learning. Students also remarked on the importance of making a connection between the ex-prisoner who visited the class and the writings on his blog. A student who read through all of the blog entries referred to ‘getting a bit lost’ in the reading (in a positive way):

‘But... that was brilliant because... that’s real life, it isn’t just a book of somebody that is faceless to us, do you know what I mean? ... I just really enjoyed it.’ (Focus group, Student 4).

However, even where they had not met the authors or the protagonists, students still made a more personal connection to the material than when learning solely from theoretical literature or research:

‘... suddenly you take it down to the more personal level, so yes, we may not have met many of the people that we’ve read about, but you feel as if you’ve got an insight into their life and you feel like you know them ...you empathise with them, and you feel so angry... But I think that’s the enjoyable thing about it, that you can feel the emotions’
(Focus group, Student 3).

Students remarked how during university study the pressure of essays and exams often meant that they engaged with reading in a functional manner. The *Reflections* module provided the opportunity for in-depth involvement with the literature, which it is hoped will continue long after they have left the course:

Student 1: ‘...This is the first time in ten years I’ve read a book. I’m not even joking, I get books for ... essays and skim through them but that’s the first time I’ve read a whole book in ten years.’

Tutor: ‘Do you think you’re going to keep reading?’

Student 1: ‘Yeah, I really enjoyed it!’

Similarly,

‘... you see, the whole time I’ve been at university, I haven’t actually sat down and read a good book that I’d be interested in. And this here was the first time I was able to read so many books’
(Focus group Student 4).

‘Because of the books I read for this module, I now actually have two other books sitting at home that I’m going to start reading ... it sparked some sort of interest in my head that I want to read more now ‘
(Focus group Student 3).

Feedback to the authors from the small number of dyslexic students who have taken the module to date is that they appreciate being able to use film, or analysis of short pieces such as blogs or poems for their assignments as alternatives to books.

Although students initially found the format of the coursework challenging, they fully engaged with the course requirements. A few remarked in their written feedback that fewer tasks would be preferable but with a higher word count (up to 1,000 words), as it could be difficult to express all their thoughts in 500 words. Some also found the tasks repetitive in terms of the application of relevant theory. Both of those issues were considered in the re-design of the module for the following year. Students appreciated the formative feedback on first drafts of their work (this was mentioned in one third of the surveys and in the focus group), as this improved their understanding of what was required and allowed for redrafting before final submission. While unquestionably advantageous to students, the promise of formative feedback on all four short assignments proved a significant challenge to the tutor and so the following year written feedback was provided on a fewer number of pieces.

Finally, regarding the expectation that students would reflect on their emotional and intellectual reactions and include this within assignments, most had difficulty with this at first as the following exchange indicates:

Student 2: 'It was quite weird to write what you actually think. I felt kind of lost with this...'

Student 1: 'I can't still bring myself to write in the first person at the end.'

Student 2: 'In first person!'

Student 3: Yeah, that's the only downfall ... it's drilled into you for so long not to write in first person that when I sat down and my first line is 'I am' and I'm thinking oh my god, I don't know how to write this!'

A recommendation from survey responses was that more guidance be given on the process of reflective writing, and in light of this feedback the assessment was reorganised in later years so that the reflective

aspect was confined to a single piece of writing (1,500 words). For this assignment, students were asked to reflect on all of the material they had read or viewed, and to explore the ways in which their views had been challenged or confirmed. Students were advised to keep reflective diaries throughout the module, and time was devoted to reflective writing with students bringing in a short reflective piece for peer discussion.

Conclusion

Reflections on Prison Lives was developed as a way of facilitating student understanding of prison life, without necessarily resorting to the ‘carceral tour’. Reading or watching memoir-based accounts helped students to make sense of the theory they had previously learned, and to apply such theory to real-life examples. The use of memoirs and blogs also allowed the voices of imprisoned people to be heard, even by this relatively small group of students. We are confident that the methods used in the module allowed for more than just a glimpse into the ‘total institution’ (Goffman 1961).

The reflective aspect of the module was intended to encourage students’ consideration of their own feelings and views as they read or viewed narrative accounts. The research confirmed that students were highly engaged by the experience of reading memoirs, with some volunteering that they rarely had the opportunity to read whole books during their degree. While this was a criminological module, there are transferable lessons for those in other disciplines regarding the possibilities of creating an environment where taking time to read, watch and reflect is encouraged. A pressure on students in the 21st century is the vast amount of material available and the consequent expectation (or perceived expectation) that they will produce assignments with long lists of references. Time limitations mean that students often jump from article to article, gleaning information but not having the opportunity to reflect on what they have read. This is clearly a skill which they need in modern life. Yet students enjoyed being provided with space to slow down and read whole books or watch entire films, having a greater choice of material and to some extent directing their own learning. Their enthusiastic participation within *Reflections on Prison Lives* also made it a great educational experience for the tutors who not only teach, but also learn from the students along the way.

Acknowledgements

The authors would like to thank our students for their participation in the module and for generously taking part in this research. Thank you also to the anonymous reviewers who took the time to provide helpful feedback.

References

Bulpitt, H. and Martin, P.J. (2005) Learning about Reflection from the Student. *Active Learning in Higher Education*. 6(3), 207–217.

Figes, O. (2014) ‘Students don’t read books any more. Why?’ *Times Educational Supplement*, Friday 23 May 2014. <http://www.tes.co.uk/article.aspx?storycode=6430095> (accessed 1 October 2014).

Goffman, E (1961) *Asylums: Essays on the Social Situation of Mental Patients and Other Inmates*. New York: Doubleday & Co.

Hedberg, P. R. (2009) Learning Through Reflective Classroom Practice: Applications to Educate the Reflective Manager. *Journal of Management in Education*, 33 (1), 10-36.

Kolb, D.A. (1984) *Experiential Learning experience as a source of learning and development*. New Jersey: Prentice Hall.

Larrivee, B. (2000) Transforming Teaching Practice: Becoming the critically reflective teacher. *Reflective Practice*, 1(3), 293-307.

Moon, J. (2004) *A Handbook of Reflective and Experiential Learning*. London: Routledge Falmer.

Piché, J. and Walby, K. (2010) Problematizing Carceral Tours. *British Journal of Criminology*. (2010) 50, 570–581.

Rovai, A.P., Baker, J.D. and Ponton, M.K. (2014) *A Practitioners’ Guide to Research Methods and IBM SPSS Analysis*. Chesapeake: Watertree Press.

Pino and Mortari (2014) The Inclusion of Students with Dyslexia in Higher Education: A Systematic Review Using Narrative Synthesis. *Dyslexia* 20(4),346-369.

Reid, G.(Ed) (2009) *The Routledge Companion to Dyslexia*. Oxon: Routledge.

Ryan (2007) Learning disabilities in Australian Universities: Hidden, Ignored and Unwelcome, *Journal of Learning Disabilities* (September/ October). 40(5), 436-442.

Schon, D. (1983) *The Reflective Practitioner, How Professionals Think In Action*. US: Basic Books.

Scott, S.G. (2010) Enhancing Reflection Skills through Learning Portfolios: An Empirical Test. *Journal of Management Education*. 34(3), 430-457.

Smith, H.P. (2013) Reinforcing Experiential Learning in Criminology: Definitions, Rationales, and Missed Opportunities Concerning Prison Tours in the United States, *Journal of Criminal Justice Education*. 24(1), 50-67.

Thomas and May (2010) *Inclusive learning and teaching in higher education*. York: Higher Education Academy.

Agnieszka Martynowicz is a former Doctoral Candidate in Criminology at the School of Criminology, Politics and Social Policy, Ulster University. Agnieszka is currently a Lecturer in Criminology at the Department of Law and Criminology, Edge Hill University.

Dr Linda Moore is a Senior Lecturer in Criminology at the School of Criminology, Politics and Social Policy, University of Ulster.

Research Article

Improving class attendance and student retention: it's a (Physio) SNAP!

Mark Poulter

Background

Attendance Monitoring

Student retention is a priority in higher education across the globe (Stolk et al., 2007; Crosling et al., 2009; Essack, 2012) and one of the contributing factors that can lead to poor retention is poor attendance (Fowler & Norrie, 2009). Attendance has been shown to be directly related to marks (Marburger, 2006; Green et al., 2010; Davis, 2011; Teixeira, 2014), marks have been shown to correlate with self-efficacy (Sawtelle et al., 2012), and self-efficacy has, in turn, been shown to be directly related to retention (Devonport & Lane, 2006). Across the HE sector, most early withdrawals occur during the 1st year (Sabin, 2012); this accounts for why Year 1 retention is a key benchmarking figure for universities internationally (Boxall et al, 2011).

Recognising that Year 1 is of key importance for overall student progression and success, Ulster University's First Year Undergraduate Teaching Policy (University of Ulster, 2008, p.2) states that 'attendance monitoring with timely (supportive) follow-up should be in place'; however, no direction regarding the nature of the follow-up is given. Similarly, there is currently no University-wide student non-attendance policy (SNAP); thus, many different SNAPs exist across the institution. Prior to 2007-08, the BSc Hons Physiotherapy course had no set SNAP. Attendance was monitored by individual Module Coordinators, but the lack of a SNAP meant that there was no consistent approach to dealing with unsatisfactory attendance. Attendance was poor and a long-standing source of frustration to the course team. In 2007, the author was given the task of developing a new SNAP (the Physio SNAP), and this was introduced for Year 1 Physiotherapy students in September of that year.

The Physio SNAP (version 1)

Year 1 attendance was recorded at each class with a standard sign-in sheet. A follow-up ('Non-attendance') email was sent by the designated Student Attendance Monitor (SAM) to any student who missed a class. These emails contained details of the class and reminded recipients of the support available via Studies Advisors should they have been experiencing any difficulties affecting their attendance. All non-attending students sent the SAM their reasons for missing class, using the University's Notification of Absence (NA1) form. Once these had been received, students' reasons (plus supporting evidence) were considered and either accepted (e.g. hospital appointments and representing the University) or not accepted (e.g. work commitments and missing the bus). Any student missing three classes in any one module, whether the reasons were accepted or not, was interviewed by the Course Director (CD). The CD was able to ask whether there were any issues affecting the student's attendance and, if there were, either offer advice or direct the student appropriately (e.g., towards Student Support Services). The meeting also enabled the CD to check that the student understood the possible consequences of poor attendance: not only the possible poor results/failure that can follow poor attendance on any course, but also the course-specific consequences contained in the BSc Hons Physiotherapy Course Document:

'Students who are absent for any reason for a substantial (which, at that time, was not defined) proportion of classes may not be allowed to go on placement nor take the assessments relevant to the missed classes, without first showing evidence of having made good the learning from the missed classes.' (University of Ulster, 2007, p.B67)

The Physio SNAP (version 2)

The original Physio SNAP addressed the need for standardisation of approach, but was too demanding of staff time. Too much time was spent writing 'Non-Attendance' and 'Notification' emails (the latter being those alerting the CD to students who, having missed three classes in one module, needed to be interviewed). In addition, the NA1 form (designed to record absence from the University, rather than non-attendance at individual classes) proved unsuitable. Consequently, a number of

changes were made for the following academic year: a Notification of Non-Attendance (NONA) form (Figure 1) was created to replace the NA1 form; the number of forms received was reduced by telling students to send in their reasons for non-attendance only if they wished these to be considered; and the *Semi-Automated Attendance Monitoring Package*

Notification of Non-Attendance (NONA) Form

This form has been created to enable you to record the reasons for your non-attendance so that any extenuating circumstances can be identified.

- ∞ You may use one single NONA form to cover all instances of non-attendance in a single continuous period, as long as the same one reason for non-attendance applies to all missed classes during that period.
e.g. If you miss two classes on one day, or three classes over three days, all because of the same episode of illness, you need only submit one form... if you recover and return to class, but then subsequently succumb to the same illness and have to miss further classes, you should then submit another NONA form.
- ∞ Print off and submit one hard copy of this form to the appropriate staff member (e.g. Year Tutor, Attendance Monitor, etc.) **within 5 days** of the last class to which it refers.
N.B. – If you have any evidence to support your stated reasons for non-attendance (e.g. a note from a doctor or coach, or a photograph, etc.) you should submit that too – this will be used to determine the acceptability/verifiability of your claim.
- ∞ Retain one copy for your own records.

1. **Student's details:**
Reg. No.: _____ Name: _____
2. **Reason for non-attendance(s):**
*Where possible, you should **attach and submit supporting evidence** to support your stated reason for non-attendance (e.g. note from doctor/coach) – this will be used to determine your claim's acceptability.*
3. **Confidentiality:**
This form will be viewed by the Student Attendance Monitor and the Course Director. On occasions, we may wish to share the information with other academic staff, but only with your permission.
Are you willing for this information to be shared with other academic staff without us seeking additional permission from you? (circle one)

YES NO
4. **Class details:**
Add additional class details as necessary
Only list classes covered by the one 'reason for non-attendance' (as explained above)

| Module Code <i>e.g. PTH123</i> | Abbreviated Title <i>e.g. SFA1</i> | Day <i>e.g. Mon</i> | Date <i>e.g. 01.11.08</i> | Time <i>e.g. 10:15</i> |
|-----------------------------------|---------------------------------------|------------------------|------------------------------|---------------------------|
| | | | | |
| | | | | |
| | | | | |

Figure 1: Notification of Non-Attendance (NONA) form

(SAAMP) was created.

The SAAMP

The SAAMP (Figure 2) is an Excel-based tool designed by the author to facilitate implementation of the Physio SNAP. Details of missed classes are rapidly entered using simple drop-down menus. These details then automatically appear in bespoke ‘Non-Attendance’ emails created at the click of an on-screen button. Other buttons generate bespoke ‘Attendance Status’ emails, which ensure that students can easily keep track of how many classes they have missed and whether reasons have been accepted or not. Other buttons generate bespoke ‘Notification’ emails. The SAAMP was designed to save staff time, whilst also facilitating effective attendance monitoring. Using the SAAMP with a class of 60 students, it typically takes the author less than 5 minutes to record all non-attendance, send ‘Non-Attendance’ emails to each missing student, send ‘Notification’ emails alerts to the CD, and send each student an individual, bespoke ‘Attendance Status’ email.

- A brief (4½-minutes) demonstration of the SAAMP in action can be seen at the following site: <http://screencast.com/t/oVG7jixieQbg>.

The Physio SNAP (v2) was used (with the SAAMP) for five semesters until,

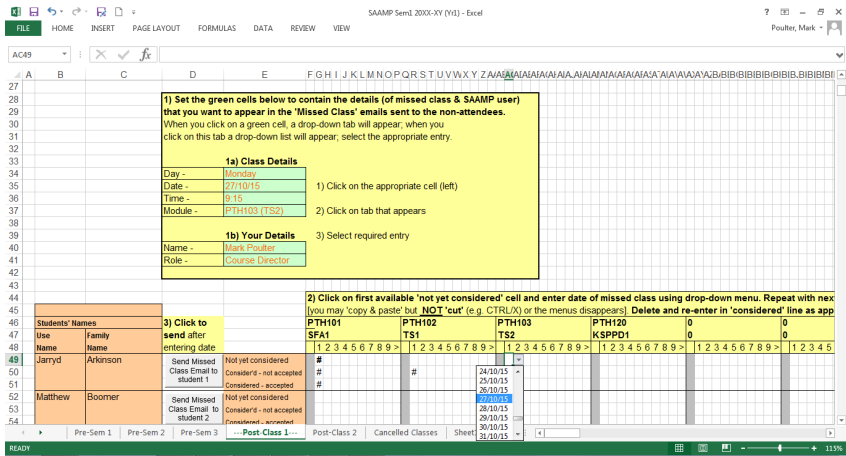


Figure 2: Screenshot of the SAAMP

in 2011, it was replaced with another, relatively standard, SNAP.

The Standard SNAP

Attendance was collected using sign-in sheets and then recorded by Module Coordinators on a standard Excel file accessible to the whole team. No emails were sent to students; thus there was no immediate follow-up of non-attendance, nor was assistance given to them to track their own attendance. NA1 forms were used. The attendance record was interrogated by the Year Tutor who, if subjectively deeming it necessary, had the task of calling non-attending students to a meeting to identify reasons for the non-attendances, and to consider possible solutions. If attendance did not improve (though again, with no set definition of what this meant) the student was again interviewed, this time with the CD and Studies Advisor. Should no improvement result, the Associate Head of

| | Standard SNAP | Physio SNAP(v3) |
|--|---|---|
| In-class attendance recording | Sign-in sheets | Sign-in sheets |
| Post-class attendance collation | Shared excel file | Semi-Automated Attendance Monitoring Package (SAAMP) |
| Follow-up of non-attendance | No immediate follow-up | Email sent after every non-attendance containing: <ul style="list-style-type: none"> - Details of missed class; helps students to: <ol style="list-style-type: none"> a) Obtain correct notes b) Keep track of attendance c) Challenge the record (if student was actually present) - Advice to see Studies Advisor - Reminder to send in reason for missing class (plus supporting evidence) if student wishes for this to be considered. |
| Forms used | NA1: suitable for recording absence but not non-attendance. | NONA: designed specifically for recording non-attendance. |
| Meetings held | Decided on subjectively following scan of record and discussion with colleagues in Weeks 2, 5, 8 & 11. <p>Meeting 1:</p> <ul style="list-style-type: none"> - Year Tutor - Supportive <p>Meeting 2:</p> <ul style="list-style-type: none"> - Course Director & Studies Advisor - Verbal warning <p>Meeting 3:</p> <ul style="list-style-type: none"> - CD & SA - AHoS informed | No subjectivity. Course Director meets all students who miss 3 classes (for whatever reason) in any one module. Meet again after 2 more missed classes (5 in total). Meetings are 100% supportive. <p>Attendance-related:</p> <ul style="list-style-type: none"> - Any problems affecting attendance - Check understanding of SNAP and its rationale <p>Course & Classmates:</p> <ul style="list-style-type: none"> - How's the course? - How's everyone else? - Ask student to be vigilant for struggling classmates & to offer help/advice to seek staff help as needed. |
| N-A tracking by student | Students left to track own attendance. No extra help given by staff. | Non-attendance emails: <ul style="list-style-type: none"> - After every missed class Attendance status emails: <ul style="list-style-type: none"> - Every 1-2 weeks. |
| Consequences of non-attendance | Prior to being allowed to take assessments relevant to the missed classes, students must show evidence of having made good the learning from the missed classes. | |
| Application of this consequence | No clear threshold | Clear threshold <ul style="list-style-type: none"> - 20% (unacceptable) - 30% (any reason) |

Table 1: Comparison of Student Non-Attendance Policies (SNAPS)

School would be informed.

Like the Physio SNAP before it, the Standard SNAP was also used for five semesters before being replaced by the Physio SNAP (v3). Table 1 shows a comparison of the main features of both the Physio SNAP (v3) and the Standard SNAP.

The Physio SNAP (version 3)

Introduced in Sept 2013, this latest version of the Physio SNAP (see Figure 3) is identical to version 2 in all but two regards: students re-met the CD after missing five classes in total in any one module, and non-attendance thresholds were specified (see below). In addition, whilst not involving a change to the Physio SNAP itself, the author, who had acted as SAM during the initial 5-semester Physio SNAP (v2) period, became CD and agreed to reprise his role as SAM as well.

Non-Attendance Thresholds

In 2007, the University Teaching & Learning Committee agreed to the University-wide adoption of the Approved Absence and Independent Study Programme (AAISP; University of Ulster, 2007b, p.2). Subject to certain conditions, this allows elite/high performance student athletes to miss up to 40% of a semester's timetabled classes without consequence. No such thresholds existed for other students, neither across the University as a whole, nor within the Physio SNAP (v2).

In 2013, the BSc Hons Physiotherapy Course Committee agreed to set thresholds for what constituted the 'substantial proportion of classes' mentioned in our Course Document: 20% of a module's total monitored classes if there were no acceptable reasons for having missed class, or 30% if there were acceptable reasons. These figures are in keeping with the views of our students: when surveyed, 88% of Physiotherapy students felt that there should be an imposed consequence for poor attendance; all students (100%) felt that there should be a different threshold for those who miss class for 'non-accepted' vs. 'accepted' reasons, and their median responses suggest that these thresholds should be set at 20% and 30% respectively. Accordingly, when meeting students about attendance, the CD reminds them that those who miss 20% of a module without acceptable reasons, or 30% even with acceptable reasons, are required

to demonstrate in a method determined by the respective Module Coordinator (e.g. via a written, oral or practical demonstration) that they have made good the learning from their missed classes before being allowed to take part in the module's summative assessments.

Currently, the rationale for this is presented to students at these meetings as follows:

'Sometimes, we physiotherapy lecturers lie awake at night worrying that our current or past students might not be treating their patients correctly; it's as if there is a devil and an angel on opposite shoulders saying the following:

D: 'They might not be treating their patients properly.'

A: 'Don't worry, they all passed their assessments.'

D: 'Ah! But you teach them loads of techniques and only assess them on a few, maybe they're using the non-assessed ones badly.'

A: 'Don't worry, they saw you demonstrating in class and were able to ask questions, and then you watched them perform the techniques and gave them feedback.'

D: 'Ah! But some students miss a lot of classes.'

A: 'Don't worry, any who missed a lot will have had to demonstrate that they'd made good the learning from the missed classes before you'd have let them be assessed.'

D: 'OK. You win... go to sleep.'

So then we manage to sleep soundly knowing that we've done all we can to protect the public.'

The students appear to accept this rationale and enjoy the imagery.

In requiring the students to demonstrate via formative assessment that they have made good the missed learning before being allowed to take part in summative assessments, we are following Regulation 13 of the University's General Regulations for Students, which states:

'If at any time the board of a faculty, on the advice of a Course/Subject Committee, is of the opinion that a student's progress is unsatisfactory

it may send to the student due notice in writing that, unless there is an improvement, it will debar the student from taking examinations' (Ulster,

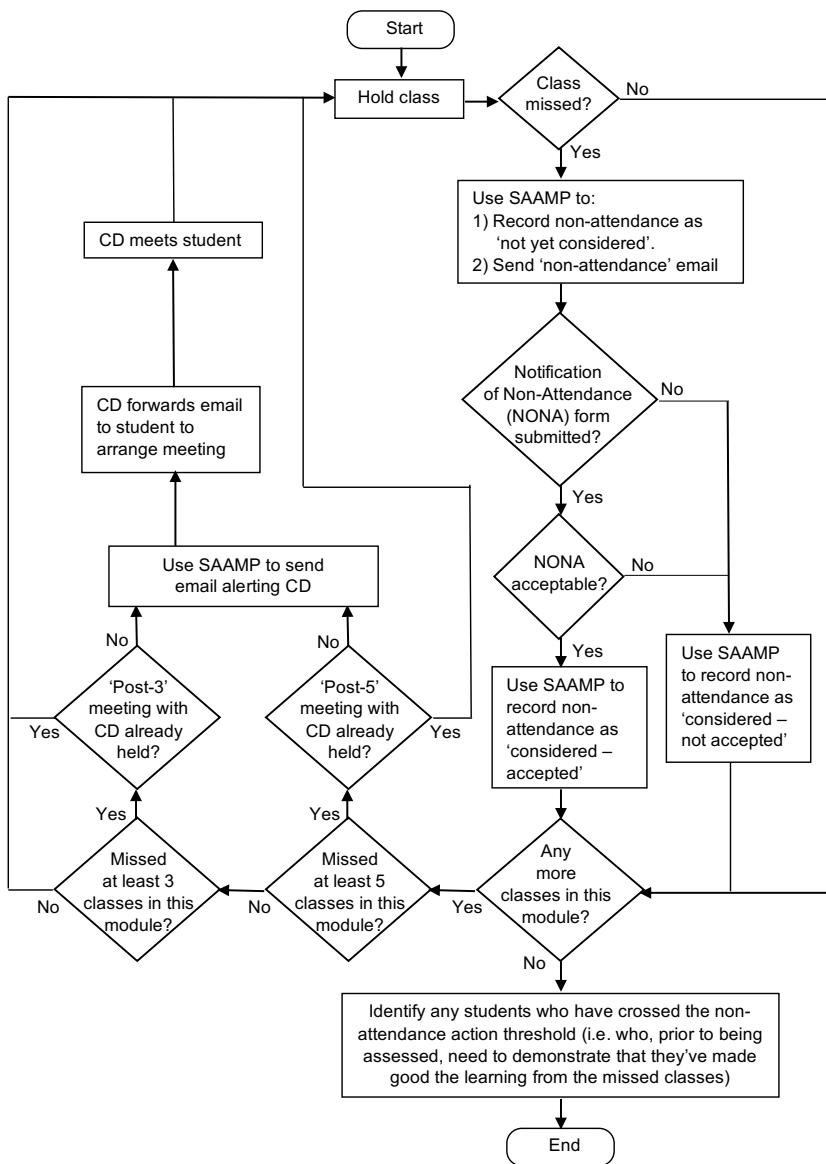


Figure 3: Flowchart of Student Non-Attendance Policy (Physio SNAP, version 3)

University 2015:4).

Study Design and Ethics

Having alternated between Physio SNAP, Standard SNAP and Physio SNAP again, each for five semesters, we had unintentionally followed an ABA study design; it was thus possible to compare the two SNAPs. Given the post-hoc nature of this comparison, no ethical approval was sought beforehand; furthermore, as it is service evaluation rather than research (Health Research Authority, 2016) no ethical approval was needed.

Results

Attendance

Figure 4 shows the number of 1st Year students since the 2008-9 introduction of the Physio SNAP to have missed 30% or more of any one module (i.e. the threshold beyond which the consequence could be applied, even were the students to have missed for acceptable reasons).

Sem1 08-09 to Sem1 10-11: The Physio SNAP/SAAMP was used in the first five semesters, and in all but one of these (when ten students did so) either zero or only one or two students crossed the 30% threshold.

Sem2 10-11 to Sem2 12-13: Following the introduction of the Standard SNAP, non-attendance rates rocketed. Every single semester saw higher non-attendance than the worst of the previous five SNAP/SAAMP semesters. In one semester, almost half the class (42%) failed to attend at least 30% of at least one module.

Sem1 13-14 to Sem2 14-15: Following the re-introduction of the Physio SNAP/SAAMP in 2013-14, no 1st Year student missed more than 30% of any one module in the subsequent five semesters. Indeed, across those five semesters, only 6% (n=19) of all 300 1st Years (mean 60 students x 5 semesters) missed more than 20% of classes in at least one module, and of these, only 3 students did not have acceptable reasons and thus crossed the non-attendance threshold.

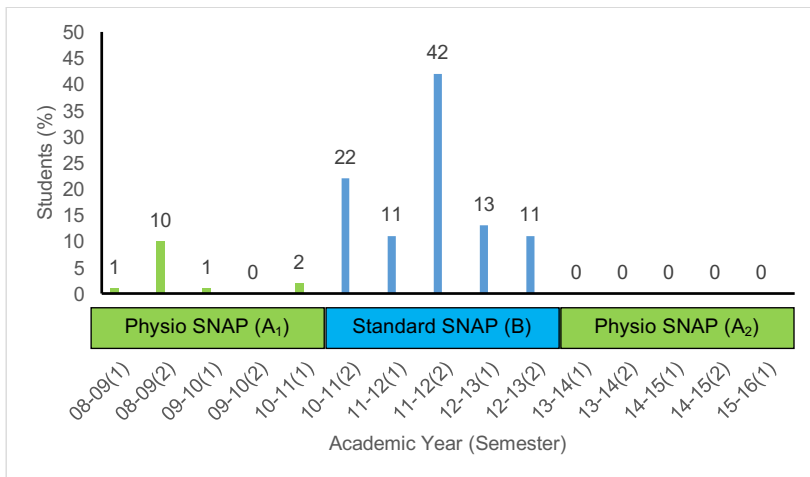


Figure 4: Percentage of Year 1 students who missed at least 30% of classes in at least one module (2008-15)

Whilst Figure 4 focuses on the number of students who crossed the 30% non-attendance threshold, it is also worth noting the number of individual instances of non-attendance across the 1st Year. Figure 5 shows a relative comparison of the total instances of non-attendance in the last year of the Standard SNAP (2012-13) compared with each of the next two years following re-introduction of the Physio SNAP/SAAMP. It should be noted that:

1. This base year (2012-13) is the least badly attended of all in the Standard SNAP period.
2. In 2012-13, one of the three Semester 1 modules only had attendance recorded in the first six weeks of the semester; therefore, to ensure a fair comparison, this module's contributions to the figures shown for the next three years have also been limited to just Weeks 1-6.
3. It is not sufficient to simply compare raw attendance figures across the years as the numbers of attendance opportunities vary from year to year (due to variations in the number of classes held and the number of students). Accordingly, the reductions shown in Figure 5 (52%, 44% and 65%, and their mean of 54%) take these variations

into consideration and thus represent reductions in the proportion of classes missed.

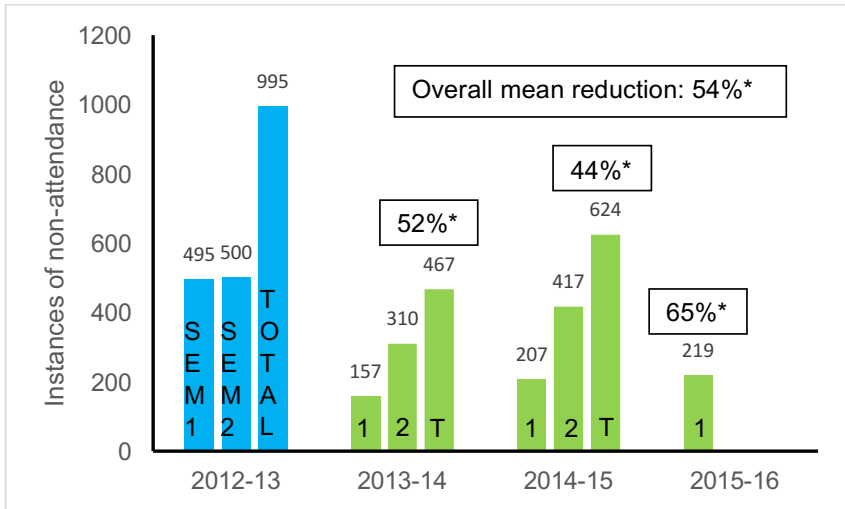


Figure 5: Total instances of Year 1 non-attendance (2012-15)

* Reductions relative to 2012-13 factoring in differences in no. of classes and students.

Retention

As reported above: one of the contributing factors that can lead to poor retention is poor attendance (Fowler & Norrie, 2009). When surveyed, 95% of physiotherapy students expressed the opinion that monitoring attendance makes it more likely that students will attend. It could be expected, therefore, that the choice of SNAP could have a major influence on retention.

Figure 6 shows the percentage of students from each cohort who left the course early over the period of this unintentional post-hoc ABA study. It can be seen that, following the re-introduction of the Physio SNAP/SAAMP, the number of students leaving the course early fell sharply. It has to be acknowledged that at the time of writing, and as indicated by the broken line in Figure 6, two of these final three cohorts have not yet finished

their course; however, as already stated: across the sector, most early withdrawals occur during the 1st year (Sabin, 2012). Indeed, across the whole 8-year period, no physiotherapy student ever withdrew from Year 3.

Figure 7 compares the physiotherapy course's Year 1 early leaver figures with those from across the whole University. Studies suggest that there is little difference between the proportion of students who consider withdrawing early from healthcare courses (46.5%; Hamshire et al., 2013) compared to those on a broader range of courses (42%; McCary et al., 2011). This suggests that there is no obvious reason to expect the withdrawal rates from physiotherapy to differ greatly from the University-wide figures. Indeed, as can be seen from Figure 7, the figures from the BSc Hons Physiotherapy course mirrored, or were higher than, the University-wide figure until the year when the Physio SNAP was re-introduced. Only one Year 1 student left in each of the subsequent two years, and both of these students had made it to the end of Year 1 without crossing either the 20% or 30% non-attendance action thresholds. Even though they eventually decided to leave, both had given the course a 'good go' before making this decision – unlike those who might drift out of their course through poor attendance. However, tempting as it might be to attribute this drop in attrition directly to the re-introduction of the Physio SNAP/SAAMP, Figure 7 suggests that it is not that clear cut. The SNAP/SAAMP combination was also used in the years 2008-9 and 2009-10, and yet 11.3% and 10% of those intakes (8 and 7 students respectively) left the course by the end of their first year.

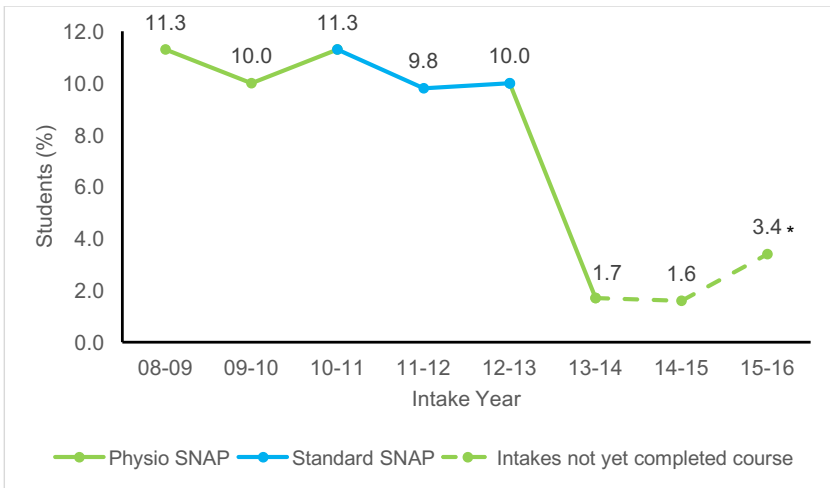


Figure 6: Early leavers by end of course (BSc Hons Physiotherapy, Ulster)

*Both 15-16 students (3.4% of intake) left in Sem2, 2015-16; although this is outside the comparative 5-semester period under consideration, the data are shown for transparency.

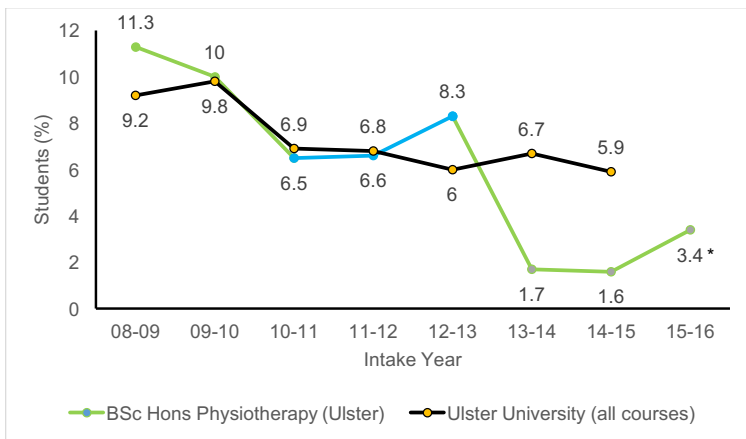


Figure 7: Early leavers (Yr1, FT, UG).

University-wide figures calculated from University of Ulster (2014)

*Both 15-16 students (3.4% of intake) left in Sem2, 2015-16; although this is outside the comparative 5-semester period under consideration, the data are shown for transparency.

From the current post-hoc perspective, it is impossible to determine why the second Physio SNAP/ SAAMP period (A_2) should have been any more successful at retaining students than the first period (A_1). As indicated above, the Physio SNAP was only modified slightly from that used in the first 5-semester (A_1) period: an additional second meeting with students was introduced and a single person carried out both the role of CD and SAM, but these changes alone seem unlikely to be the cause of such a difference in retention. It is true that the wording of the non-attendance emails was changed to be more student-friendly; however, when surveyed prior to this change, 91% of students had expressed satisfaction with the original wording. Each of the three individual periods (A_1 , B and A_2) had a different CD; once again, it is debatable as to whether this had any bearing on retention. It could be argued that the drop in early leavers from the physiotherapy course seen in 2013-14 could have come about as a result of some extraneous factor such as the poor economic climate: a student might well be less willing to leave a course of study when obtaining outside employment is difficult. However, it is not apparent why this would affect the Physiotherapy retention rate, without also affecting the overall University figure. The setting of specific attendance thresholds, beyond which students receive a 'consequence', is possibly a more likely explanation of the A_1 - A_2 difference.

Whatever the reason, something appears to have created a sudden improvement in retention on the Physiotherapy course. Whilst it would be unrealistic to put this improvement entirely down to the re-introduction of the improved Physio SNAP, the author believes it would be equally unrealistic not to acknowledge that some of this improved retention is likely to be due to the Physio SNAP. In the years 2008-13, prior to its reintroduction, between four and eight Year 1 students left each year giving a mean early leaver rate of 8.54%. In the year following its re-introduction, just one student left (1.7%; a reduction in early leaver rate of 80%). The next year, once again, only one student left (1.6%) and as no-one left in Semester 1 of 2015-16, this gave an overall post-re-introduction (A_2) reduction of 81% relative to the previous mean (over the A_1 and B periods). However, as seen in Figures 6 and 7, two Year 1 students (3.4%) have left from the 2015-16 intake. Although they left outside the 5-semester A_2 period (i.e. in Semester 2, 2015-16), they are

presented here for the sake of transparency. Time will tell what the next year will bring, and not only in regard to the 2016-17 intake. At the time of writing, there is one student from the 2014-15 intake on leave of absence from Year 1 who could yet decide to leave. Should this happen, the combined mean Year 1 early leaver rate from the three intakes following the re-introduction of the Physio SNAP would drop from 81% to 72% for the A₂ period (or 68% if including the two students who left after this period).

Potential savings

University of Ulster (2014) suggests a mean Year 1, FT UG early leaver rate across the 2008-15 period of approximately 7.3% of the University's approximately 6,000 annual intake. This represents a mean figure of 438 Year 1 students leaving early each year (7.3% of 6,000). As these students do not continue into Years 2 and 3, this represents a per capita loss of income to the University of £7,850 (2 x £3,925 annual tuition fees) giving a total loss of £3,438,300/yr (438 x £7,850). A reduction of only 29% in the number of Year 1 students leaving early could therefore be expected to 'save' the University £1M/yr. As has been shown, the reduction in Year 1 early leavers following the introduction of the Physio SNAP (v3) was at least 68%.

Conclusion and Recommendations

Whilst the kind of post-hoc analysis presented in this paper cannot provide the same level of evidence as a rigorously-designed pre-hoc trial, the figures seem compelling, to say the least. When the Physio SNAP/SAAMP combination was temporarily replaced with what is arguably quite a standard attendance SNAP, instances of non-attendance increased dramatically. Following re-introduction of the Physio SNAP, non-attendance instantly fell to the extent that, in the author's opinion, there is no longer an attendance problem in Year 1 of the BSc Hons Physiotherapy Programme. An unlooked-for additional finding is that retention on the course has been noticeably higher in the past three years than at any time previously. This might well be, at least in part, directly attributable to the use of the Physio SNAP/SAAMP combination; however, it is not possible to make that claim with any degree of certainty.

The findings from this unintentional post-hoc quasi ABA study are such that other course teams are strongly recommended to consider adoption of the Physio SNAP/SAAMP combination to monitor attendance on their own programmes (the SAAMP is freely available for use within the University from the author); doing so could potentially produce considerable financial benefits to the University. Furthermore, such is the sector-wide interest in improving student attendance and attrition in HE that the findings reported here, if replicated, could prove of great interest to other institutions around the globe. In order to benefit from this interest, and to aid the University's international reputation, it is recommended that as well as expanding the number of courses at Ulster using the Physio SNAP, it be rebranded as the 'Ulster' SNAP.

References

Boxall, M., Webb, A. & Ramsden, B (2011) *International Benchmarking in UK Higher Education* [HESA-commissioned report]. London: PA Consulting Group.

Crosling, G., Heagney, M. & Thomas, L. (2009) Improving student retention in higher education: improving teaching and learning. *Australian Universities' Review*, 51 (2), 9-18.

Davis, A. (2011) The correlation between attendance and achievement, *Teaching Fellowships*, Paper 13. <http://arrow.dit.ie/fellow/13>

Devonport, T.J. & Lane, A.M. (2006) Relationships between self-efficacy, coping and student retention. *Social Behavior and Personality: an International Journal*, 34 (2), 127-138.

Essack, S.Y. (2012) Translating equitable access into retention and success in African higher education: the role and responsibility of individual institutions. *South African Journal of Higher Education*, 10(2), 47-62.

Fowler, J. & Norrie, P. (2009) Development of an attrition risk prediction tool. *British Journal of Nursing*, 18 (19), 1194-1200.

Green, P., Pogue, M., McGrath, G. & Wilson, A. (2010) Should I stay or should I go? Attendance and attainment in first year modules. *Perspectives on Pedagogy and Practice*, Vol 1, 51-61.

Hamshire, C., Willgoss, T.G. & Wibberley, C. (2013) Should I stay or should I go? A study exploring why healthcare students consider leaving their programme. *Nurse Education Today*, 33 (8), 889–95.

Health Research Authority (2016) *Defining Research*. [Leaflet] London: Health Research Authority.

Marburger, D.R. (2006) Does mandatory attendance improve student performance? *The Journal of Economic Education*, 37 (2), 148-155.

McCary, J., Pankhurst, S., Valentine, H. & Berry, A. (2011) *A comparative evaluation of the roles of student adviser and personal tutor in relation to undergraduate student retention: final report from the What Works? Student Retention & Success Programme*. Anglia Ruskin University.

Stolk, C.V., Tiessen, J., Clift, J. & Levitt, R. (2007) *Student Retention in Higher Education Courses: International Comparison. [Technical report]* United Kingdom: RAND Corporation.

Sabin, M. (2012) Student attrition and retention: untangling the Gordian knot. *Nurse Education Today*, 32 (4), 337-8.

Sawtelle, V., Brewé, E. and Kramer, L.H. (2012) Exploring the relationship between self-efficacy and retention in introductory physics. *Journal of Research in Science Teaching*, 49 (9), 1096-1121.

Teixeira, A.A.C. (2014) The impact of class absenteeism on undergraduates' academic performance: evidence from an elite Economics school in Portugal, in *Innovations in Education and Teaching International e-journal*. <http://www.tandfonline.com/doi/full/10.1080/14703297.2014.937730>

Thomas, L. (2012) *Building Student Engagement and Belonging in Higher Education at a Time of Change: Final Report from the What Works? Student Retention & Success Programme*. London: Higher Education Academy.
 University of Ulster (2007a) Course Document of the BSc Hons Physiotherapy (Start Date: Sept 2007). Coleraine: University of Ulster.

University of Ulster (2007b) Approved Absence and Independent Study Programme, in Extract from Teaching and Learning Committee Minutes: 17.10.07. <http://www.ulster.ac.uk/academicoffice/download/Policies/Elite%20Athletes.doc> (accessed 01 August, 2016).

University of Ulster (2008) First Year Undergraduate Teaching Policy, in Extract from Teaching and Learning Committee Minutes: 23.04.08. <http://www.ulster.ac.uk/academicoffice/download/Policies/Teaching-FirstYrUG.doc> (accessed 01 August, 2016).

University of Ulster (2014) Retention and Progression of Full-time First Year Undergraduates (2014/15). <http://www.ulster.ac.uk/quality/qmau/uonly/senate/s1537.pdf> (accessed 01 August, 2016).

University of Ulster (2015) Regulations 2015-2016. <http://www.ulster.ac.uk/secretary/regulations.pdf> (accessed 01 August, 2016).

Mark Poulter is designer and creator of the SAAMP and Physio SNAP; he has been Course Director of the BSc Hons Physiotherapy programme since Sept 2013.

Research Article

An empirical investigation into the impact of student engagement with a virtual learning environment upon first year module performance

Peter Green, Tim Harris, Michael Pogue, Martin Smith and Andy Till

Introduction

Recent research by Green *et al.* (2014) highlights the significant negative impact of absenteeism upon student first year performance. However, in the context of Ulster University's Learning and Teaching Strategy (2013) which places the emphasis on how students learn, they note: 'Non-attendance does not necessarily impact upon student learning, if students are emotionally and cognitively engaged in their studies and availing of the technological learning environment which is now widely available on most programmes of study' (Green *et al.*, 2014, p.82). This raises the research question: is student engagement with a virtual learning Environment (VLE) associated with 'better' student performance? This study provides empirical evidence with regard to this question.

In common with both Green *et al.* (2010) and Green *et al.* (2014), this study employs data from students on the BSc Business Studies degree at Ulster University, but it differs in that the students are based at both the Birmingham and London branch campuses, and the course is delivered by an Affiliate College partner, QAHE. Under the terms of the operation of the partnership, the same course is delivered, in the same manner, at the branch campuses, as they are on the home campus at Jordanstown. The VLE employed is Blackboard Learn.

Blackboard is a Learning Management System (LMS) which provides instructors with a web-based instructional platform. Whilst there are many cited benefits from the use of Blackboard, the most commonly quoted by students is increased availability: 'Blackboard can be accessed from the internet at anytime and anywhere. Students can retrieve all of their course materials including assignments, lecture notes, slides, internet hyperlinks, and audio/visual aides. They can submit their assignments

as soon as they are complete.’ (Bradford et al., 2007, p.302). See also, Heirdsfield et al., 2007. Within the context of the literature on the use of technology in education, Blackboard (BB) is largely used on the Business Studies degree in first year at Ulster University as an availability tool (although there are exceptions) as part of a blended or ‘hybrid’ (Swenson and Evans, 2003) delivery which blends online components with the standard face-to-face teaching. Although there exists a growing literature on how new technologies may influence how teachers teach and on how students learn (see, for example, Levine and Sun, 2003), a consideration of this is not within the scope of this study. At Ulster University, particularly in the introductory stages of university education, the focus has been primarily upon the manner of the delivery of information rather than on how learning takes place, which would appear to be a common feature of the early stages of the implementation of a LMS (Herrington, Reeves and Oliver, 2005; Davis *et al.*, 2007; Malikowski, Thompson and Theis, 2007; Norton and Hathaway, 2008).

Currently there are few empirical studies which investigate the impact of a LMS upon objective measures of student learning, such as module performance (notable exceptions being DeNeui and Dodge, 2006, and Chowdhry, Sieler and Alwis, 2014). Most previous research studies have focused upon student perceptions of the advantages or disadvantages of the incorporation of a LMS with regard to their learning. The relatively few studies which have investigated an objective measure of student learning offer conflicting evidence (for a comprehensive review of early studies see Fjermested, Hiltz and Zhang, 2005).

DeNeui and Dodge (2006) investigated whether student utilisation (the number of times a student accesses course material placed upon Blackboard) is positively related to examination performance for a group of 80 students studying two introductory courses in psychology at a medium sized US university, Blackboard was used in these courses in a very similar manner to that employed at Ulster University, primarily as an availability tool on courses which had been designed for face-to-face teaching delivery; in other words, a blended learning environment, in which student Blackboard usage is not compulsory. The authors recognised the experimental nature of the research design, particularly

with regard to employing the frequency of blackboard access as a measure of usage. As they noted, ‘... although Blackboard provides data on the amount of usage, there is no way to measure the quality of that usage. That is, to be counted a student need only click on the contents tab, there is no way to know the difference between a student who opens a folder within Blackboard simply to see what’s new and a student who spends three hours studying that day’s class notes.’ (DeNeui and Dodge 2006, p.259). The results of the study suggest ‘... a small but significant correlation between students’ total amount of Blackboard usage and their final grade in the course.’ (DeNeui and Dodge 2006, p.258).

Chowdhry, Sieler and Alwis (2014, p.1) investigated whether student utilisation (the number of times a student accesses course material placed upon a VLE) is correlated with student performance for three modules at Edinburgh Napier University in the academic year 2013/14. ‘The results showed that the number of VLE visits did not have a direct impact on the final marks obtained by the students. However, for one of the modules (MEM) there was some correlation between the final marks obtained by the students and the way the modules were structured around the VLE.’

It is useful to place the results of the latter two studies within the context of the literature on student engagement. As Green et al. (2014) note, student engagement may be categorised as behavioural, emotional and cognitive (Fredericks, Blumenfeld and Paris, 2004). Trowler (2010) suggests that individual students may conceivably exhibit differing levels of engagement with regard to each dimension. The manner in which these components combine may arguably determine how students learn, as objectively manifested in overall performance scores. Whilst attendance may capture aspects of all categories of engagement, equally, voluntary engagement in a VLE may very well provide an incremental measure of student engagement.

Data description & statistical analysis

The empirical evidence presented in this study is based upon the Year 1 September 2014 intake to the BSc Business Studies degree at both the Birmingham and London Branch campuses of Ulster University. The students studied three year 1 (level 4) modules in the first semester:

Business Accounting (ACF106) with 100 percent assessed coursework via three time constrained class tests; Management Skills (BMG 130) with 100 percent coursework assessed, via six assigned tasks with no time constraints, and Introduction to Management (BMG162), assessed by a combination of coursework and a final time constrained examination.

A review of successful applicants for Year 1 entry reveals that 9 percent entered on the basis of UK qualifications (1% on the basis of A-level); 32 percent on the basis of EU qualifications; 31 percent on the basis of international qualifications, and 28 percent with APEL (10% on the basis of UK qualifications). The heterogeneous pre-university education of students reflects the University's commitment to widening participation in higher education.

Although approximately 55 percent of the students admitted to the programme in September 2014 held a British passport, analysis of nationality identified 43 other nationalities. Gender analysis indicates that 66 percent of the students were male. With regard to age, 96 percent of the students were 21 or over (mature). Table 1 provides descriptive statistics relating to the year 1 entry (excluding early leavers), subsequent student performance, measures of student engagement (absenteeism and the frequency of BB access) and age, separated by branch campus. It should be noted that attendance was taken on each day of scheduled classes, in the morning and again in the afternoon, using biometric identification. The recording of attendance via biometric identification essentially employs 'finger print' technology to identify student attendance. Attendance was not taken at a modular level and, therefore, absenteeism is the overall weekly average for each student over the 12 week semester. BB access refers to the frequency with which students' access course materials placed upon Blackboard from the date of the start of the semester to the date of any final assessment. Thus, two measures of student engagement, one which is course specific and one which is module specific for each student, namely absenteeism (or non-attendance) and the frequency of BB access, are investigated. It should be noted that technical problems with the biometric system of recording attendance did result in the attendance of a number of students, particularly at the Birmingham branch campus, not being

recorded. Furthermore, the date of birth for a few students was not recorded. Hence, for some of the statistics reported, there is a difference in the number of observations.

Table 1 highlights statistically significant differences in the module marks for all modules between the Birmingham and London branch campuses. A significant difference for one of the measures of student engagement considered (BB access) is observed for only 1 module (Management Skills, BMG130). High levels of absenteeism and low levels of BB access are observed across most modules. There is no significant difference in student age or absenteeism between branch campuses.

Whilst the differential student performance at the Birmingham and London branch campuses was subject to further University investigation, in the context of this study the primary issue of interest was whether student engagement with Blackboard has a positive and incremental impact from absenteeism upon student performance. In order to investigate this initially, the following model is estimated using Ordinary Least Squares (OLS) regression:

where, Y_m is the module mark achieved (coursework and examination where appropriate) in semester 1; α_0 is a constant term introduced as a rather ad hoc way of capturing the impact of omitted variables; CAM is a dummy variable which takes the value 1 if students studied at the London campus and 0 for the Birmingham campus; ABS is the percentage absenteeism over the 12 week semester; BB is the number of times a student accessed Blackboard from the start of the semester to the date of final assessment; AGE is the age of the student at the date of commencement of study, and μ is a stochastic error term. The generic form of the model is similar to that employed in Green et al (2014); however, it excludes an independent variable for entry qualification, i.e., total tariff points on entry. Given the heterogeneity of entry qualifications, it is not possible to include such a variable in this study. It is thus assumed that the constant term captures this effect, together with any other omitted variables. The results of the estimation are presented for each module studied in semester 1 in Table 2.

| Birmingham | ACF106 | | BMG130 | | BMG162 | | Semester 1 Absenteeism (%) | Age Student Profile |
|---|---------------------------|-------------------------|---------------------------|-----------------------------|---------------------------|--------------------------|----------------------------------|--------------------------|
| | Mark (%) | BB access (Number) | Mark (%) | BB access (Number) | Mark (%) | BB access (Number) | | |
| Mean | 57.53 | 14 | 51.30 | 87 | 45.34 | 46 | 34.20 | 37 |
| Median | 65.50 | 9 | 53.50 | 68 | 53.00 | 40 | 21.95 | 36 |
| Mode | 0.00 | 0 | 44.00 | 8 | 0.00 | 0 | 4.20 | 40 |
| First Quartile | 40.25 | 1 | 44.00 | 27 | 30.00 | 20 | 20.27 | 32 |
| Third Quartile | 78.00 | 20 | 61.00 | 135 | 60.75 | 64 | 41.91 | 40 |
| Standard deviation | 25.97 | 15 | 14.37 | 72 | 20.96 | 41 | 22.75 | 8.39 |
| Skewness | -0.80 | 2 | -2.02 | 1 | -0.90 | 2 | 1.40 | 0.11 |
| Kurtosis | -0.55 | 5 | 5.75 | 0 | -0.22 | 7 | 1.91 | -0.06 |
| Number | 64 | 64 | 64 | 64 | 64 | 64 | 46 | 63 |
| London | ACF106 | | BMG130 | | BMG162 | | Semester 1 Absenteeism (%) | Age Student Profile |
| | Mark (%) | BB access (Number) | Mark (%) | BB access (Number) | Mark (%) | BB access (Number) | | |
| Mean | 38.18 | 12 | 43.97 | 64 | 32.38 | 50 | 39.32 | 35 |
| Median | 40.00 | 6 | 45.50 | 46 | 33.00 | 36 | 35.83 | 33 |
| Mode | 0.00 | 0 | 40.00 | 0 | 0.00 | 0 | 10.42 | 26 |
| First Quartile | 9.00 | 1 | 41.00 | 16 | 17.00 | 36 | 18.75 | 27 |
| Third Quartile | 62.00 | 15 | 53.00 | 92 | 49.00 | 75 | 53.85 | 42 |
| Standard deviation | 27.81 | 19 | 15.20 | 68 | 19.94 | 54 | 24.90 | 9.74 |
| Skewness | 0.07 | 5 | -1.64 | 2 | -0.09 | 2 | 0.58 | 0.33 |
| Kurtosis | -1.29 | 34 | 2.79 | 6 | -1.01 | 4 | -0.43 | -0.93 |
| Number | 225 | 225 | 230 | 230 | 221 | 221 | 220 | 226 |
| Statistical tests for difference in mean | t = 4.998* Z = -4.963* | t = 0.645 Z = -1.728 | t = 3.453* Z = -4.395* | t = 2.318** Z = -2.462** | t = 4.534* Z = -4.555* | t = -0.705 Z = -0.377 | t = -1.288 Z = -1.386 | t = -1.414 Z = -1.636 |

Where multiple modes exist the lowest is reported. t-statistics are adjusted if Levene's test indicates the variance is not constant.
 *Significant at the 1% level using a two tailed t-test. **Significant at the 5% level using a two tailed t-test.

Table 1: Descriptive Statistics Year 1

| Dependent Variable (Ym) | Constant | Campus | Absenteeism | BB access | Age | Adjusted R-square | Number |
|--------------------------------|----------|---------|-------------|-----------|---------|-------------------|--------|
| 1. ACF106 Module mark | | | | | | | |
| Coefficient | 93.628 | -14.760 | -0.609 | 0.324 | -0.568 | 0.437 | 256 |
| Significance | 0.000** | 0.000** | 0.000** | 0.000** | 0.000** | | |
| 2. BMG130 Module mark | | | | | | | |
| Coefficient | 63.123 | -4.644 | -0.306 | 0.023 | -0.100 | 0.333 | 262 |
| Significance | | 0.000** | 0.019* | 0.000** | 0.048* | 0.195 | |
| 3. BMG162 Module mark | | | | | | | |
| Coefficient | 63.927 | -9.007 | -0.384 | 0.113 | -0.351 | 0.449 | 253 |
| Significance | 0.000** | 0.000** | 0.000** | 0.000** | 0.000** | | |

* Significant at the 5% level using a two-tailed t-test. ** Significant at the 1% level using a two-tailed t-test.

$$Y_m = \alpha_0 + \alpha_1 CAM + \alpha_2 ABS + \alpha_3 BB + \alpha_4 AGE + \mu$$

Table 2: Results from OLS regression

The results reported in Table 2 reveal that campus (whether a student is based in Birmingham or London), absenteeism, and generally, student age, have a statistically significant negative impact upon student performance, with students at the London campus performing less well than Birmingham; higher absenteeism is associated with lower student performance, and, generally, older students perform less well than younger ones. It is noteworthy that student age is not statistically significant for the only module which does not have a time constrained element of assessment (BMG130 Management Skills), which is also the only module with a statistically significant difference with regard to BB access across the two campuses (Table 1). On the other hand, student engagement on the VLE (the number of times a student accesses BB during the semester) has a significant positive impact for all modules which is incremental to the negative impact of absenteeism. Whilst the constant term is highly significant in all three regressions, indicating the presence of omitted variables, it is reassuring that the explanatory power (adjusted R-square) is relatively high for all three regressions. It should be noted that the impact of gender and nationality are also investigated, but neither was found to be statistically significant.

The final stage of the statistical analysis performed involved the use of binary logistic regression. The goal of logistic regression is to correctly predict the category of outcome; in this case, a module pass mark for individual students using the most parsimonious model. The form of the model to be estimated is:

$$\text{logit}(p_i) = \ln \left(\frac{p_i}{1 - p_i} \right) = \beta_0 + \beta_1 x_{1,i} + \dots + \beta_k x_{k,i}.$$

where p_i is the probability of a student (i) obtaining a module pass mark. For purposes of estimation, each student's module mark is thus transformed into a binary variable, where 1 equates to a module pass and 0 equates to a module fail. This forms the dependent variable. β_0 is a constant term introduced to capture the impact of omitted variables and β_1 to β_k are the independent variables, namely, a combination of continuous and dummy variables for each individual student. For the campus of study (CAM,) this is a dummy variable which takes the value of 1 for London and 0 for Birmingham, a student's absenteeism is a continuous

variable (ABS); the frequency of access to blackboard (BB) is a continuous variable; student age is a continuous variable; gender is a dummy variable taking the value of 1 for male and 0 for female, and nationality is a dummy variable taking the value of 1 for those students holding a GB passport and 0 if otherwise. The estimation was made using SPSS and the method was forward stepwise (conditional) regression. The results of the final iterations are shown in Table 3.

The results reported in Table 3 reveal that the combination of variables which best predict module success or failure in Business Accounting (ACF106) are campus of study, absenteeism, BB access and age. These factors jointly predict 72.1 percent of student outcomes. With regard to the Management Skills (BMG130) module, only the absenteeism and BB access variables significantly combine to accurately predict 93.5 percent of student outcomes. Finally, the combination of campus of study, absenteeism and BB access are jointly significant in accurately predicting 70.1 percent of student outcomes for the module Introduction to Management (BMG162). Neither the gender or nationality variable is significant in any of the estimations performed. Whilst no single parsimonious model is identified for predicting module success or failure for all three modules, from the perspective of the objective of this paper it is quite clear that both absenteeism (measured at an aggregate level across modules) and BB access (measured at a module specific level) are amongst the combined statistically significant predictive variables. The negative sign on the estimated coefficient for absenteeism and the positive sign on the estimated coefficient for BB access are consistent with the results obtained from OLS regression, i.e., they are incrementally significant, absenteeism having a negative impact and BB access having a positive impact upon student performance.

Policy Implications

Ulster University has given extensive consideration to student attendance, attendance monitoring and subsequent student support. This is evidenced by the existing policy guidance relating to this:

<http://www.ulster.ac.uk/academicoffice/download/Policies/Attendance%20-%20Protocol.doc>

<http://www.ulster.ac.uk/academicoffice/download/Policies/Student%20Attendance.doc>

In summary, recording attendance is considered important to providing students with support regarding their learning, but it is recognised that accurate attendance monitoring is both difficult (for large classes) and potentially costly and should thus be focused upon seminars for those modules identified as being subject to small group teaching, in accordance with University regulations, and aimed at identifying non-attending students, with the objective of improving student retention. The manner of implementation of attendance monitoring has largely been devolved to individual faculties. The results of this study and that of Green et al. (2010) and Green et al. (2014) support the negative impact which absenteeism has upon student performance and hence the importance of monitoring attendance. However, it also adds to the body of literature by providing empirical evidence that student engagement with Blackboard has a positive impact upon performance; it may be useful to monitor such engagement, which is relatively easy, with an associated low cost. Thus, it may be argued that both attendance monitoring and the monitoring of student engagement with Blackboard should be implemented in order to provide support to students with regard to their learning. Whilst this argument is based upon the empirical evidence presented in this study, there is also a conceptual basis that can be extrapolated from the existing literature.

Heirdsfield et al. (2011) investigated the perceptions of both students and staff with regard to the use of Blackboard within the Faculty of Education at the Queensland University of Technology. As with previous studies, students held favourable opinions with regard to the increased availability and accessibility of learning materials. Furthermore, they valued the interactive tools such as wikis, blogs and discussion forums available within Blackboard, which were perceived as assisting students to 'learn from each other' as well as from the instructor. Students also valued the use of video recorded lectures (lecture capture) being available on Blackboard: 'Students noted the value of video/audio streaming of lectures because it was another way to be involved in the learning process. For some it saved time because they did not need to be at university to hear the

lecture and for others it was a way to be more involved in the learning process when watching the PowerPoint slides' (Heirdsfield et al., 2001, p.7). Similarly, staff perceptions were generally also positive with regard to the use of blackboard, although it was noted that many of the staff did require further training on the use of the technology. However, there was a noticeable difference with regard to the use of video capture: '... 65% of staff were uncertain about actual use of video/audio streaming of lectures which was the interactive learning tool particularly valued by all students. Staff perceived that video/audio streaming reduced the engagement of on-campus students through poor lecture attendance, thus diminishing internal students' overall learning experience' (Heirdsfield et al., 2011, p.9).

The study by Heirdsfield et al. (2011) highlights not only the perceived benefits deriving from the use of Blackboard and hence students' engagement with this VLE, but also the potential negative impact of absenteeism on overall student learning. It seems logical that in attempting to support student learning that both should be monitored. Indeed, given that the profile of the student body at most universities is changing due to the economic and social environment and advances in educational technology, it is reasonable to assume that the way in which students learn is also changing and attempting to support this learning by focusing exclusively upon attendance monitoring no longer 'fit for purpose'.

Future Research

This study, as are those of DeNeui and Dodge (2006) and Chowdhry, Sieler and Alwis (2014), is experimental in design in that student usage of Blackboard is measured by the frequency of student access. As previously noted, this does not take into consideration the quality of student usage. Future research should be aimed at addressing this fundamental weakness. Further research is also required as to why a single parsimonious model does not exist for predicting module specific student success or failure. Indeed, Chowdhry, Sieler and Alwis (2014, p.4-5) suggest: 'Such a diversity in results (of reported studies) relating to the relationship between students' performance and the use of VLEs might be due to the fact that in every similar study the results are influenced by several factors, some of which might include: whether the

| Dependent | Constant | Campus | Absenteeism | BB access | Age | Percentage predicted correctly | Number |
|----------------------------------|----------|--------|-------------|-----------|--------|--------------------------------|--------|
| Variable (Pass=1, Fail=0) | | | | | | | |
| 1. ACF106 (Step 4) | | | | | | | |
| Coefficient | 4.346 | -1.186 | -0.044 | 0.023 | -0.046 | 72.1% | 256 |
| Significance | 0.000* | 0.006* | 0.000* | 0.032** | 0.005* | | |
| 2. BMG130 (Step 2) | | | | | | | |
| Coefficient | 5.677 | | -0.071 | 0.028 | | 93.5% | 262 |
| Significance | 0.000* | | 0.000* | 0.024** | | | |
| 3. BMG162 (Step 3) | | | | | | | |
| Coefficient | 0.925 | -1.021 | -0.029 | 0.010 | 70.1% | | 253 |
| Significance | 0.036** | 0.005* | 0.000* | 0.001* | | | |

* Significant at the 5% level. ** Significant at the 1% level

Table 3 Results from binary logistic regression

study investigates students' first contact with VLEs or whether using VLEs is a common practice at a particular institution; prior experience of students with online learning; lecturer's background, creativity and IT skills; students' background; and the types of learning activities and materials provided through the VLE.'

One obvious avenue for this study, given the reported results, relates to the different types of assessment employed within the modules investigated, and in particular how student specific characteristics such as age are related to such assessment and learning outcomes.

References

- Bradford, P., Porciello, M., Balkon, N., and Backus, D. (2007). The Blackboard learning system. *The Journal of Educational Technology Systems*, 35, 301-314. <http://uupinfo.org/research/working/bradford.pdf>, (accessed 7 July 2015)
- Chowdhry, S., Sieler, K., and Alwis, L. (2014). A study of the impact of technology-enhanced learning on student academic performance. *Journal of Perspectives in Applied Academic Practice*, 2(3), 3–15.
- Davis, J., Lennox, S., Walker, S., and Walsh, K. (2007). Exploring staff perceptions: Early childhood teacher educators examine online teaching and learning challenges and dilemmas. *International Journal for the Scholarship of Teaching and Learning*, 1(2),1-15.
- DeNeui, D. L., and Dodge, T. (2006). Asynchronous learning networks and student outcomes: The utility of online learning components in hybrid courses, *Journal of Instructional Psychology*, 33(4), 256-259.
- Fjermestad, J., Hiltz, S. R. and Y. Zhang (2005). Effectiveness for students: comparisons of 'in-seat' and ALN courses. In: Hiltz, S. R. And R. Goldman (Eds), *Learning Together Online: Research on Asynchronous Learning Networks*, 39-80. Mahwah, NJ: Erlbaum, 2005.
- Fredricks, J.A., Blumenfeld, P.C. and Paris, A.H. (2004) School Engagement: Potential of the Concept, State of the Evidence, *Review of Educational Research*, 74 (1), 59–109.
- Green, J.P., Pogue, M., McGrath, G., and Wilson, A., (2010) 'Should I stay or should I go: Attendance and attainment in first year modules', *Perspectives in Pedagogy & Practice*, Vol 1, 51-61.

Green, J.P., McGrath, G., Pogue, M., and Wilson, A. (2014), Student engagement, absenteeism and first year performance, *Perspectives in Pedagogy Practice & Practice*, Vol 5, 81–98.

Heirdsfield, A., Davis, J., Lennox, S., Walker, S. and Zhang, W. (2007). Online learning environments: What early childhood teacher education students say. *Journal of Early Childhood Teacher Education*, 28, 115-126.

Heirdsfield, A., Walker, S., Tambyah, M., and Beutel, D. (2011) Blackboard As An Online Learning Environment: What Do Teacher Education Students And Staff Think? *Australian Journal of Teacher Education*, Vol 36, pp 1-16.

Herrington, J., Reeves, T. C., and Oliver, R. (2005). Online learning as information delivery: Digital Myopia. *Journal of Interactive Learning Research*, 16(4), 353–367.

Levine, A., and Sun, J. C. (2003). Distributed education: Summary of a six-part series. Washington, DC: American Council on Education.

Malikowski, S. R., Thompson, S. R., and Theis, J. G. (2007). A model for research into course management systems: Bridging technology and learning theory, *Journal of Educational Computing Research*, 36(2), 149-173.

Norton, P., & Hathaway, D. (2008). Exploring two teacher education online learning designs: A classroom of one or many? *Journal of Research on Technology in Education*, 40(4), 475-495.

Swenson, P.W. and Evans, M. (2003). Hybrid Courses as Learning Communities. In Reisman, S. (ed.), *Electronic Learning Communities Issues and Practice*. Charlotte NC: Information Age Publishing 27-72.

Trowler, V (2010). Student Engagement Literature Review, Higher Education Academy. <http://www.heacademy.ac.uk/assets/documents/studentengagement/StudentEngagementLiteratureReview.pdf> (Accessed July 2015).

Ulster University (2013). Learning and Teaching Strategy.

<http://portal.ulster.ac.uk/render.userLayoutRootNode.uP?tparam=utf&utf=http://www.ulster.ac.uk/academicoffice/T%26LStrategy.html> (accessed 28 July 2015).

Dr J. Peter Green is a graduate and a Reader in Teaching and Learning of Ulster University. He is currently Head of the partnership between UUBS and QAHE.

Dr Tim Harris is a graduate of both Oxford and Cambridge and is currently the Dean of QA Higher Education.

Mr Michael Pogue is a graduate of Queens University, Manchester University and Ulster University. He is currently a Senior Lecturer in Financial Services Business Development (UUBS).

Mr Martin Smith is a graduate of Ulster University and the Partnership Administrator for the UUBS/QAHE partnership.

Mr Andy Till is a graduate of Leeds University and a member of the Chartered Institute of Management Accountants. He is currently an Associate Dean with QA Higher Education.

Essay Article

The Midwich Cuckoos Revisited: promoting learning through peer group work

Bill Byers

Introduction

Higher education has experienced educational development and commitment to teaching on an unprecedented scale over the last quarter of a century. Unfortunately, there does not appear to be any clear evidence for improved learning by our students during this period. This should not surprise us, as Bodner told us 30 years ago that ‘Teaching and learning are not synonymous: we can teach, and teach well, without having the students learn’ (Bodner, 1986, p.873). It should, however, concern us: learning and teaching may not be synonymous but they are of course related, though the relationship is not simple. We tend to judge teaching in terms of the effort put in by the teacher, whereas the quantity and particularly the quality of learning is likely to be much more dependent on the effort being put in by the learner. All too often, where a teacher increases input to try to address any learning difficulties being experienced by students, the learners may merely be encouraged to reduce their own efforts. Alas, doing the wrong thing better is unlikely to lead to success. Learning, like teaching, is an active process and student effort is clearly a necessary condition for learning to occur. It is not, of course, sufficient; the effort also needs to be well directed. If we wish to support our students’ learning, we as teachers must try to ensure that the students themselves are making well focussed efforts to achieve the desired learning outcomes. Our current efforts would appear to be either misguided or ill focussed, and would suggest that what is needed is a more active, or better still, a more interactive approach to learning by students. It is argued that such an approach can be facilitated when students are encouraged to work in small groups. Such group work can easily be introduced into all conventional teaching activities including lectures, laboratories, tutorials, case studies, projects, role-play and even coursework (Byers and Wilkins, 2005).

Although working in small groups has been widely used in higher education for many years, it traditionally took the form of a teacher-led tutorial. While there is little doubt that this, when done well, can offer a rich learning opportunity, it undoubtedly places a high demand on staff time (Ogborn, 1977). Unfortunately, the recent expansion in higher education, as we move from an elitist approach to the mass education system needed to support a knowledge-based economy, has been accompanied by a decrease in both unit funding and staff to student ratios, making this former approach hard to facilitate. This has led to claims that students must start to take more responsibility for their own learning and has encouraged the search for innovative approaches to teaching which place a reduced burden on the teacher. Widespread use of computers and information technology represents one such approach; cooperative learning and peer group work another. Despite the enormous investment in resources and time involved in applying and adapting computers to education, to date evidence of improved subject specific learning has remained elusive (Bodner, 1997). In general, evidence of the benefits of peer group work appears more easily found (Dougherty *et al.*, 1995; Kogut 1997). The potential advantages of group learning are all too well illustrated in John Wyndham's classic book *The Midwich Cuckoos* (Wyndham, 1960). Following a visit by extraterrestrials, all young women in the village of Midwich find that they are pregnant and subsequently give birth simultaneously to beautiful blue-eyed babies. The resulting infants develop surprisingly rapidly, and it is suddenly realised that whenever any one of the children learn something all the others also know it. As teachers, we would surely enthusiastically welcome the possibility that once anything is learned by an individual student, the knowledge is also acquired by the rest of the class. Alas, this is not so in the book, where all the community could see was the threat posed by the awesome power that such a gift confers, and needless to say it all ends in tears. While the possibility of duplicating the situation described in Wyndham's book remains an impossible dream (Wyndham, 1960), there is little doubt that students can learn much from each other, and learning in peer groups would appear to offer an attractive option in the present climate. An excellent introduction to the area of peer group work is provided by the book published by Jaques (2000). A recent booklet

published by The Higher Education Academy (Mills and Alexander, 2013) is also likely to be of interest. Although this booklet is heavily weighted towards traditional tutorials, it considers sociological and anthropological aspects which are not discussed in the present paper.

Advantages of peer group work

It is important not to confuse the product with the medium. Learning is the desired end product and peer groups are only significant in so far as they serve to promote this. Fortunately, there are sound pedagogical reasons to believe that working in peer groups can potentially promote efficient learning (Dougherty et al., 1995; Spencer, 1999). Significantly, working in such groups requires the learner to assume a more active / interactive role than normal by formulating ideas and exchanging opinions with peers. Ideally this can promote a meaningful dialogue. While most students are unwilling to question their teachers, believing that any difference of opinion is likely to reflect their own lack of understanding, they are, in general, much more likely to disagree and debate with their classmates. Such interactions not only encourage meaningful learning, but are also likely to enhance time on task, a frequently neglected aspect of learning (Byers, 2001). Studies have shown that group work can lead both to improved learning in terms of reproduction, understanding and application (Sisovic and Bojovic, 2000) and to improved attitude towards science (Shibley and Zimmaro, 2002). Students are likely to benefit from having a topic sympathetically explained by peers who only recently understood it themselves and can still remember the difficulties encountered. The benefit to the peer tutor is probably even greater, as the effort required to express a concept in one's own words, so it can be explained to others is, as all teachers surely know, a very rich learning experience (Coe *et al.*, 1999).

A large majority of students like group work and find it motivating. It tends to decrease the feeling of isolation and promotes friendship and pro-social behaviour. Group work employed early on in a course may well therefore assist retention (Townsend et al, 2000). It can also help to develop a wide range of vital generic attributes, including communication and interpersonal skills and time and task management as a by-product of subject specific learning (Duprey et al., 2003). Group work frequently

enables the learners to be given part ownership of the process, enhancing motivation and perseverance (Sharan and Sharan, 1990). Peer groups should therefore be encouraged to be as autonomous as possible with the teacher only intervening when it is clear that a group may be in danger of making serious mistakes. Group work can permit tasks too large for an individual to be successfully completed, and individual learners within a group are likely to approach even difficult tasks with greater confidence.

Problems with peer group work

Although peer group work offers significant advantages to learners, there are also a number of potentially serious disadvantages. Most noticeably, although most students appear to enjoy the social interaction of group work, it is only with experience that they begin to function efficiently as team members (Byers, 2002). This is consistent with suggestions by Garratt that students need to become familiar with any new learning approach before they can be expected to engage fully with it (Garratt, 2001). The importance of preparing students to undertake group work has also been stressed by Towns (1998), as friction or a lack of cohesion within a group can quickly inhibit expected learning benefits. Our own work has shown that while the vast majority of students in a class were in favour of working in groups, virtually all suggestions for improving the experience reflected problems within groups and voiced the recurring complaint that some students were not pulling their weight (Byers, 2002). This is an oversimplification, as clearly there are many reasons why interpersonal tensions may build up in groups. Common problems occur with 'know it all experts' who are not prepared to consider ideas from other people; 'hitchhikers' who are happy to express opinions but do no productive work; 'lurkers' who are happy to carry out tasks, often the more mundane ones, but never express opinions, and probably worst of all, aggressive individuals. With experience, group cohesion usually improves, and it is interesting and encouraging that after taking a cooperative learning course several students going on to a conventional course independently formed their own learning groups (Kogut, 1997). Poor communication seems to be a major problem affecting much group work; in particular, the oral communication skills exhibited by many students are poorly developed. While group work will help to develop these skills, the lack of them is likely to inhibit progress in the short term.

A difficult problem that is likely to be encountered during group work is the conflict between learning and team work. Unfortunately, if a group is given a task, there is a tendency to try and have each part of the exercise carried out by the individual who is already best at this task: calculations by the most numerate; data collection by the most conscientious; titrations by the most competent practical worker, and oral presentations by the most confident. While this may well yield the best result, it certainly is not likely to promote the most effective learning, which is surely our aim. It is therefore important that students be encouraged to work on aspects where they may be lacking confidence. Students can be encouraged to think about their learning priorities by asking them to fill out pre-activity questionnaires in which they indicate what they consider to be their strengths and weaknesses with respect to the tasks and skills that will be required. Students can then be encouraged to take on, rather than avoid, the tasks for which they have identified a particular weakness, while group members identifying these as areas of strength can be encouraged to support and help if needed. We call this approach 'let's play George in goal.' Obviously if you had a football match to win you would always have played George Best in attack, but he might well have actually learned more if he'd been played in goal. Such an approach, while pedagogically sound is, of course, likely to be undermined by a conventional approach to assessment that rewards the product rather than the process. Alternatively students can be required to keep 'learning logs' in which they chart their learning progress, identify areas of difficulty and, most importantly, indicate what steps they, themselves, are taking to overcome any difficulties identified (Byers, 2011).

Assessment can lead to difficulties in any teaching scheme, but it is a particular problem for group work activities where the value of individual contributions to the group effort is invariably difficult to quantify. Some would suggest that assessment and rewards of any kind tend to inhibit rather than enhance group learning by encouraging competition rather than cooperation (Kohn, 1991); this has, however, been strongly challenged by Slavin, (1991) who argues that the use of rewards and grades in group learning is likely to be beneficial. Our own approach is to encourage and reward effort to learn and inclusiveness, rather than just the final product. Wherever possible for summative assessments, we try

to include both a group and an individual component to the assessments. For formative work it seems particularly important to try and encourage effort from all students. Here we have had considerable success with our own version of Russian roulette: several groups of students are given the same assignment to tackle, and after a suitable interval a dice is rolled or lots drawn to decide which group will make a presentation to the class. Five minutes are allowed for the 'lucky group' to prepare a single overhead to help present their findings, and the dice is then rolled again to select the individual who will make the presentation on behalf of the group. Individual presentations are followed by a general class discussion. While a few students express initial concern about this approach, they quickly come to appreciate the supportive atmosphere that characterises the presentations and begin to enjoy the experience. A recent paper considers the use of self- and peer-assessment to support learning in group activities (Wenzel, 2007).

Students working in groups to solve problems frequently show a lack of ambition, due to the so called lullaby effect (Bigge et al.,1999). Once an answer is obtained, there is often little attempt to look for any better alternatives. However, when faced with the prospect of having to present ideas to 'rival groups' I observed that groups were inclined to employ deeper thinking and to discuss a range of possibilities more fully.

Factors to be considered when employing group work

Probably the first thing to be considered is why peer group work is appropriate for the task to be tackled, and how learning outcomes can be facilitated through group work. In general, it appears that open-ended problems that require high levels of interaction offer richer learning experiences than routine tasks (Cohen, 1994). The next consideration should be the size of the groups to be used. Ideally, if everyone is to be kept occupied, group size will be determined by the demands of the task. There is little point in asking a group of six to attempt a task that could readily be completed by any two of them. Of course, practicalities such as a lack of time or resources may, on occasion, mean that the ideal cannot be met. In general as group size increases, the more complex and more interesting the problem to be tackled can be. However, the chances of an individual becoming completely inactive arises with increasing group

size, as does the number of interpersonal interfaces and the differences in contribution made by individual group members. As group size increases the likelihood of a group splitting into two, like a liquid drop, increases.

A further consideration is how groups should be selected. Most students prefer to select their own groups. However, such an approach is likely to result in groups of widely varying ability and will frequently leave a disenchanting few to form a remnants' group at the end. It can also be argued that as students will be unlikely to be able to choose the people they will work with in future employment; a better, if not more enjoyable, experience is provided by not allowing them to choose their own groups. An alternative approach is for the tutor to choose the groups in an effort to make them as balanced, inhomogeneous and equal as possible. There is much to recommend such an approach, but if done conscientiously it is likely to be time demanding and will invariably result in some individuals complaining about the way the groups were assigned. Probably the best approach, in general, is merely to assign students into groups on some random basis. We would include alphabetical order as a random assignment in this case. Ultimately the choice should be made with the desired learning outcomes for the exercise clearly in mind.

However we select our groups, or whatever size they are, it is vital that we provide unambiguous group goals and a clear picture of how individual accountability will be measured.

Some examples of peer group work

Group work can be introduced into any conventional teaching activity as exemplified below. It is important, however, to be clear about the learning benefits we expect when employing group work in any activity.

Lectures: Although lectures are not the ideal medium to support group work, buzz groups can be used to promote learner activity, to encourage students to think about key issues before proceeding (Byers, 1997), or just to introduce a break (Wenzel, 1999). Group work has also been suggested as a partial alternative to a traditional lecture programme (Allison, 2001)

Laboratories: Practical work is often well suited to small group activities. Routine expository and verification experiments can be made more stimulating by introducing an open-ended inquiry or project dimension (Hunter *et al.*, 2000; Byers, 2002).

Tutorials: Tutorial problems can usually be tackled by an individual, but group work encourages brainstorming and the need to formulate, communicate and possibly defend one's own ideas. Controversy leading to consensus has been shown to be particularly effective in promoting meaningful learning (Smith *et al.*, 1981).

Case Studies: Case studies are usually multidimensional, making them particularly suited to group work.

Role-Play: Role-play really requires a group setting. It can be used to create competition or antagonism between groups. This, in turn, promotes good cohesion within the groups (Byers, 2002). A particularly successful example of a role-play exercise was based on a case study involving a serious accident in a university chemistry laboratory. Students were first asked to read the scenario and make brief notes to familiarise themselves with the details. Groups then drew lots to determine which individual in the case study the group would represent. Two weeks later, one student from each group gave a short (10 minutes) oral presentation representing the case for their assigned individual while other members of the group were able to question or challenge the presentations made by the other groups. Active, sometimes heated, but always creative debate involving virtually all the class was invariably observed.

Conclusions

Peer group work can provide a potentially enriched learning environment by encouraging greater student activity/interactivity than is likely to be facilitated by traditional didactic teaching approaches. As has been demonstrated, such group work can be used with a wide variety of teaching activities, and in addition to facilitating subject specific learning, is likely to be effective for the development of a range of 'soft skills' including communication, negotiation, time management and teamwork. I have, however, been at pains to stress the difference between teamwork,

which is essentially a product driven approach and learning in groups, where the process becomes all important. Although the current review deals with approaches that have been used in science classes, the ideas and methods discussed are quite generic and should be readily adaptable to any discipline. However, any change in teaching methodology is likely to prove initially uncomfortable for both students and the teacher. It is therefore important to proceed carefully, using an action research approach to help 'bed-in' the new approach. As with any approach to teaching, desired learning outcomes and how these will be assessed should be clearly defined at the outset.

Of course, while working in peer groups can provide a good learning environment, it certainly does not constitute a solution for all learning difficulties, and clear pedagogical reasons should always be identified before any group work is introduced. However, where conventional teaching methods are failing to produce the desired learning outcomes, it might well be worth considering whether the situation is likely to be improved by the introduction of appropriate peer group activities.

References

- Allison, J. (2001) A model for Substantial Deviations from the Traditional Lecture Format for Graduate and Upper-Level Undergraduate Courses in Science-Lecture and Learning Classes. *Journal of Chemical Education*, 78, 965-969.
- Bigge, M. S. and Shermis, S. (1999) *Learning Theories for Teachers*, 6th Ed., Longman, New York, London, 285.
- Bodner, G. M. (1997) Confessions of a Modern Luddite: A Critique of Computer-Based Instruction. *CAL-laborate*, October, 2-4.
- Bodner, G. M. (1986) Constructivism: A Theory of Knowledge. *Journal of Chemical Education*, 63, 873-878.
- Byers, B. (2011) Using 'Learning logs' to promote the development of self-regulated learners. *Journal of Science Education*, 12, 28-31.
- Byers, B. and Wilkins, H. (2005) The Midwich Cuckoos revisited: promoting learning through peer group work. *Proceedings of the Science Learning and Teaching Conference 2005* (University of Warwick) 90-95.

Byers, W. (2002) Using Student-led Pre- and Post-lab Sessions to promote active Learning in small group practical classes. *University Chemistry Education*, 6, 28-34.

Byers, W. (2001) Using questions to promote active learning in lectures. *University Chemistry Education*, 5, 24-30.

Byers, W. (1997) Don't Throw the Baby out with the Bathwater. *Proceedings of the 4th European Conference on Research in Chemical Education* (University of York) 52.

Coe, E. M., McDougall, A. O. and McKeown, N. B. (1999) Is Peer Assisted Learning of benefit to undergraduate chemists? *University Chemistry Education*, 3, 72-75.

Cohen, E. G. (1994) Restructuring the Classroom: Conditions for Productive Small Groups. *Review of Educational Research*, 64, 1-35.

Dougherty, R. C., Bowen, C. W., Berger, T., Rees, W., Mellon, E. K. and Pulliam, E. (1995) Cooperative Learning and Enhanced Communication: Effects on Student performance, Retention and Attitudes in General Chemistry. *Journal of Chemical Education*, 72, 793-797.

Duprey, R., Sell, C. S. and Lowe, N. D. (2003) The Chemistry of Fragrances: A Group Exercise for Chemistry Students. *Journal of Chemical Education*, 80, 513-515.

Garratt, J. (2001) Questionable questions. *University Chemistry Education*, 5, 40-41.

Hunter C., Wardell S. and Wilkins H. (2000) Introducing first-year students to some skills of investigatory laboratory work. *University Chemistry Education*, 4, 12-15.

Jaques, D. (2000) *Learning in Groups* (3rd ed). Kogan Page: London.

Kogut, L. S. (1997) Using Cooperative Learning To Enhance Performance in General Chemistry. *Journal of Chemical Education*, 74, 720-722.

Kohn, A. (1991) Group Grade Grubbing versus Cooperative Learning. *Education Leadership*, 49, 83-87.

Mills, D. and Alexander, A. (March 2013) Small group teaching: a toolkit for learning. The Higher Education Academy. Available online at: <https://www.heacademy.ac.uk/resources/small-group-teaching-toolkit-learning> (Accessed 31, August, 2016)

Ogborn, J. Ed. (1977) *Small Group Teaching in Undergraduate Science*. Heinemann Educational Books: London.

Sharan, Y. and Sharan, S. (1990) Group Investigation Expands Cooperative Learning. *Education Leadership*, 47, 4: 17-21

Shibley, I. A. and Zimmaro, D. M. (2002) The Influence of Collaborative Learning on Student Attitudes and Performances in an Introductory Chemistry Laboratory. *Journal of Chemical Education*, 79, 745-748.

Sisovic, D. and Bojovic, S. (2000) Approaching the Concepts of Acids and Bases by Cooperative Learning. *Chemical Education: Research and Practice in Europe*, 1, 263-275.

Slavin, R. E. (1991) Group Rewards Make Groupwork Work. *Educational Leadership*, 49, 89-91.

Smith, K., Johnson, D. W. and Johnson, R.T. (1981) Can Conflict Be Constructive? Controversy Versus Concurrence Seeking in Learning Groups. *Journal of Educational Psychology*, 73, 651-663.

Spencer, J. N. (1999) New Directions in Teaching Chemistry: A Philosophical and Pedagogical Basis. *Journal of Chemical Education*, 76, 566-569.

Towns, M. H., Kreke, K. and Fields, A. (2000) An Action Research Project: Student Perspectives on Small-Group Learning in Chemistry. *Journal of Chemical Education*, 77, 111-115.

Towns, M. H. (1998) How do I Get my Students to work together? Getting Cooperative Learning Started. *Journal of Chemical Education*, 75, 67-69.

Wenzel, T. J. (2007) Evaluation Tools to Guide Students' Peer-Assessment and Self-Assessment in Group Activities for the Lab and Classroom. *Journal of Chemical Education*, 84, 182-186.

Wenzel, T. J. (1999) The Lecture as a Learning Device. *Analytical Chemistry*, 71, 817A-819A.

Wyndham, J. (1960) *The Midwich Cuckoos*. Penguin: Harmondsworth.

#Based on a workshop presented at the 'Challenge and Change in Higher Education Learning Environment: Process and Practice' conference at Ulster University, Magee Campus September 2006.

Bill Byers has taught chemistry on a wide range of courses, from sub-degree up to postgraduate level, at Ulster University, for over 40 years. Since retiring as a senior lecturer at the end of 2008 he has continued teaching, researching and examining on a part-time basis. His initial research interests in bioinorganic and environmental chemistry have gradually given way to an interest in improving pedagogy. He is particularly interested in interactive lecturing, peer-group work, learning outcomes, developing independent learners, metacognition and motivational issues. He has received a number of awards for his teaching including the Royal Society of Chemistry silver medal and tertiary education award in 2002.

Descriptive Account

Evaluation of optometry students' perceptions of hospital placements before and after feedback from ophthalmologists

Julie McClelland and Moyra McClure

Background

It is well established that training for health care professionals should involve clinical placements as part of the undergraduate learning experience (Owen et al., 2013; Mackay et al., 2013). All optometry courses in the UK include observations at hospital clinics as part of the undergraduate learning experience. This is a requirement of the General Optical Council, the regulatory body that accredits the University programmes (www.optical.org). However, there are no specific guidelines on how these clinical placements should be organised, (i.e., block placements, spread throughout the year) or the types of clinics and conditions that they should observe. Although this forms an essential and important part of the ocular disease learning, there are limited data on perceptions of hospital placements for optometry students in the pedagogical literature. Rural placements for Australian optometry undergraduates are embedded within the degree programme and considered beneficial to enhance the scope of optometry into ocular disease detection and management (Anderton, 2010). Anecdotally, students report that hospital ophthalmology clinics are extremely beneficial to their learning experience; however, there is limited formal evidence to support this (Denial et al., 2011; Wilson 1990). Gable (2001) investigated different teaching and learning methods for optometry students and demonstrated that small group case discussions with academic staff and clinicians proved a useful tool in educating students in clinical care. Although undergraduates utilise a range of learning styles (Prajapati et al., 2011), problem-based learning is an effective method that can pave the way for lifelong learning as an essential skill in optometry.

Knowledge of ocular disease is established within the initial years of the undergraduate teaching within both didactically taught content

and optometrically supervised clinical sessions. Provision of weekly eye examination clinics within final year enables students to envisage any presenting ocular disease and consider differential diagnoses and management themselves, in conjunction with their optometric supervisor. In contrast, the hospital session presents an opportunity to the students for observation of clinically diagnosed conditions, including for example, cataract and glaucoma. Primarily, clinical placement provides a learning platform for students to achieve the ability to identify and name presenting ocular disease. As the ophthalmologist questions students on what they observe, the students are highly likely to actively recall the theoretical knowledge of the presenting case. Of additional benefit is the fact that immediate feedback and confirmation of the ocular disease and management is delivered to the student by an expert. Employability skills for the student that are enhanced within a clinical placement include communication, problem solving and self-awareness of strengths and weaknesses.

Previous research in education in optometry has evaluated communication issues specifically relating to discussing abnormal clinical findings. Spafford et al. (2009) proposed that helpful feedback and detailed discussion between the student and supervisor enhances their learning experience.

However, the primary concern of the ophthalmologists involved in these clinics is to assess and treat their patients, and often due to the nature of busy National Health Service clinics, there is limited time for individual feedback on each student's performance. Although the placements are an important part of the undergraduate optometry student experience, they are not formally assessed and the ophthalmologists are not required to assess the students attending their clinics. This would not be possible due to resource constraints. Despite these potential constraints, it is widely recognised that feedback on hospital placements is essential to support the students' learning experience. Clinical placements also require good communication between all stakeholders, namely the module co-ordinator, ophthalmologists and students.

Therefore, this scoping exercise aimed to investigate optometry students' perceptions of hospital based learning in ophthalmology clinics. The specific objectives of this exercise comprised the following areas that were developed on an ongoing basis over two years:

1. The examination of whether students felt better prepared for clinical placement when given feedback from ophthalmologists (Stage 1).
2. The implementation of a student 'Guide' outlining 'requirements for ophthalmology clinical placement' that would also be provided to the ophthalmologists.
3. The continuous collaboration with the ophthalmologists to discuss their pedagogical methods and other clinical placement issues.
4. The evaluation of students' perceptions to the learning experience with the ophthalmology clinical placement and use of this data to inform the ophthalmologists.

Methods

Stage 1

Twenty five undergraduate Optometry students (Academic year 2013-14) scheduled to attend four separate ophthalmology clinics of 3.5 hours duration each during their final year, were recruited to the study (Table 1). Prior to attendance at the clinics, they were advised when and where to attend and what they needed to record in their logbooks. They were advised that this was a session organised to allow them to see a wider range of ocular pathology than they may expect in the primary care University based clinics, where they typically perform full eye examinations. At the end of semester one, after attending two ophthalmology hospital clinics, students were invited to complete a questionnaire investigating their perceptions of their learning experience provided by the placements. The questionnaire, which uses a Likert type grading system, was based on a published tool used to assess nursing placements (Chan 2002; Levett-Jones et al., 2006) (Appendix 1). Questions aimed to assess the students' perception of level of preparation for the clinics and level of engagement with the teaching experience. At the end of semester one after students had attended two clinical sessions each, ophthalmologists (n=5) involved in teaching the undergraduate students were interviewed and asked to provide structured feedback on the knowledge and engagement of the undergraduate Optometry

students. They were asked to comment on a number of areas, including student engagement and clinical skills. A full list of areas is included in Appendix 2. The ophthalmologists' reports were collated and delivered to students in a lecture situation along with a written summary of the main findings and comments. A summary of ophthalmologists' feedback is included in Appendix 4. At the end of the second semester, the student questionnaire was repeated and results analysed.

Stage 2

The authors arranged a second face-to-face collaboration with the ophthalmologists in 2014. Final year student induction for the 2014-15 academic year incorporated oral and written feedback from the ophthalmologists. This cohort of students (n = 34, Table 1) were recruited to the study to ascertain their perceptions of clinical placement, using a similarly designed Likert 5 point 'agreement' scale questionnaire as in Stage 1, with statements written to probe responses to the clinical placement as a teaching and learning exercise (Appendix 3). This cycle of feedback (ophthalmologist's feedback to students and students' feedback to ophthalmologist) has been continued annually.

A discussion with the Chair of The Biomedical Sciences Ethics Filter Committee confirmed that this project was categorised as a teaching evaluation and, therefore, ethical approval was not required. The study methodology had some limitations. Questionnaire evaluation may have been augmented by using focus group qualitative data. Sample sizes of all involved were small. Further longitudinal data would have increased data collection.

Results

Stage 1

Data were entered into an SPSS spreadsheet, Version 21. Mean scores were calculated for each question and descriptive statistics were used to summarise data. Questions were scored 1 (strongly disagree) to 5 (strongly agree). Due to the relatively small number of participants, non-parametric tests were used to analyse data (Mann-Whitney U). Twenty-three (92%) participants completed the initial questionnaire, and twenty (80%) completed the follow-up questionnaire.

Power calculations were not used to inform the sample size, as this study was primarily designed as an evaluation tool to inform teaching provision.

Student perceptions

Overall, an increase in all mean scores from the 1st to the 2nd questionnaire suggested that students felt that hospital placements were beneficial, engaging and that they had an improved knowledge of ocular disease following the placement (Table 2, Figure 1). Analyses demonstrated that significance was only achieved in one question (Q1) which related to how prepared students felt for their hospital placement (Mann-Whitney U $p < 0.001$). The mean score for this question improved from 2.83 ± 0.89 to 4.00 ± 0.32 . Analyses revealed no significant change in question score for the other five questions (Mann-Whitney U $p > 0.05$).

Feedback from ophthalmologists

While feedback is summarised in Appendix 4, of note is that the ophthalmologists advised the authors to discuss with students how to consider a differential diagnosis in clinical situations. Emphasis is to be put on common conditions, and before giving a specific diagnosis, students should attempt to categorise the condition into broader areas e.g. ageing, vascular, inflammation, infection or trauma. Positive comments about students' knowledge and professional conduct were received. Other feedback requiring student action did not relate to knowledge but rather to areas such as hand hygiene and communication skills.

Stage 2

Collaboration with ophthalmologists

The ophthalmologist/author discussion on clinical placement provided an opportunity to identify optimum pedagogical methods. Conclusions were drawn that didactic teaching and student problem solving were to be employed, with more of the former in Semester 1 whilst students were undertaking the 'Ocular Disease' module. Ophthalmologists advised that students were well presented, but needed to adhere to hospital policy and could be more proactive in general patient engagement. Students were to be advised that they needed to use the clinical equipment best

| Time | Event |
|--------------------------|--|
| Semester 1 2013/4 | 25 final year students attended clinical placement and completed the questionnaire at the end of the semester. (Stage 1) |
| Semester 2 2013/4 | Ophthalmologists' face-to-face interview with author/s. Ophthalmologists' feedback provided to students (oral and written) prior to Semester 2 clinical placement. Students' completion of questionnaire at the end of the semester (Stage 1). |
| Semester 3 2013/4 | Ophthalmologists' face-to-face collaboration with authors. Further issues identified. |
| Semester 1 2014/5 | Induction included oral and written feedback (from ophthalmologists) for students (n = 34) on clinical placement. |
| Semester 2 2014/5 | Ophthalmologists' face-to-face collaboration with authors. Students' completion of questionnaire (Stage 2). |
| Semester 1 2015/6 | Implementation of a detailed, written 'Guide' (Requirements for Ophthalmology Clinical Placement) for students. Students' feedback on clinical placement provided to Ophthalmologists prior to Clinical Placement. |

Table 1: Timeline of the scoping exercise

suited to their current undergraduate skills while on clinical placement. Ophthalmologists were encouraged, time permitting, to discuss good practice in referral letters using clinical examples, while students were to be urged to learn to identify acute active ocular disease.

Student Perceptions

While only 22% of students completed the Stage 2 questionnaire, 71% (mean score 4.7) strongly agreed that the overall experience in ophthalmology clinical placement was excellent and 100% (mean score 4.1) agreed that the clinical placement enhanced their ability to identify and name ocular disease. Students' open comments were very positive both about the ophthalmologists ('friendly, helpful and informative') and the learning experience:

'Helped us prepare for exams'

'Maintaining relationships... by letting us sit in on their clinics'

'Was great to see the ocular abnormalities'

(Anonymous student quotations)

One student noted their lack of preparedness for probing problem-solving questions:

'Overall, it was a great learning experience. I did feel put on the spot at some times though, particularly when we had not learnt all of ocular disease.' (Anonymous student quotation)

Discussion

In general, data from the present study suggests that overall both students and ophthalmologists regarded hospital ophthalmology placements as a positive experience. In order to ensure ongoing good relations with the hospital trusts, it is essential that these placements are seen as a positive experience for all involved. Students will benefit more from the experience if they feel that they are able to fully engage with the sessions and that they are welcome and not a hindrance to the smooth running of the clinics. Within the clinical placement, students have the opportunity to note employability skills of the eye-care team, namely, time management, planning and organising, professionalism,

| Question | Mean score before feedback (±DS) | Range | Mean score after feedback (±SD) | Range | Mann-Whitney U P value |
|---|----------------------------------|-------|---------------------------------|-------|------------------------|
| I feel that I was prepared for my ophthalmology clinical placement | 2.82±0.89 | 2-5 | 4.00±0.32 | 3-5 | 0.00* |
| I feel that I benefited from my ophthalmology clinical placement | 4.48±0.51 | 4-5 | 4.55±0.51 | 4-5 | 0.643 |
| I feel that I engaged fully with my ophthalmology clinical placement | 3.91±0.79 | 2-5 | 4.25±0.44 | 4-5 | 0.137 |
| I feel that the ophthalmologists were happy for me to observe their clinical sessions | 4.04±0.77 | 3-5 | 4.20±0.11 | 3-5 | 0.505 |
| I felt confident engaging with the ophthalmologists during my clinical placement | 3.78±1.00 | 2-5 | 3.95±0.51 | 3-5 | 0.705 |
| I feel that my knowledge of ocular disease has improved following my clinical placement | 4.22±0.60 | 3-5 | 4.45±0.60 | 3-5 | 0.197 |

* Significant at the 5% level. ** Significant at the 1% level

Table 2: Mean questionnaire scores before and after feedback.

* indicates statistical significance.

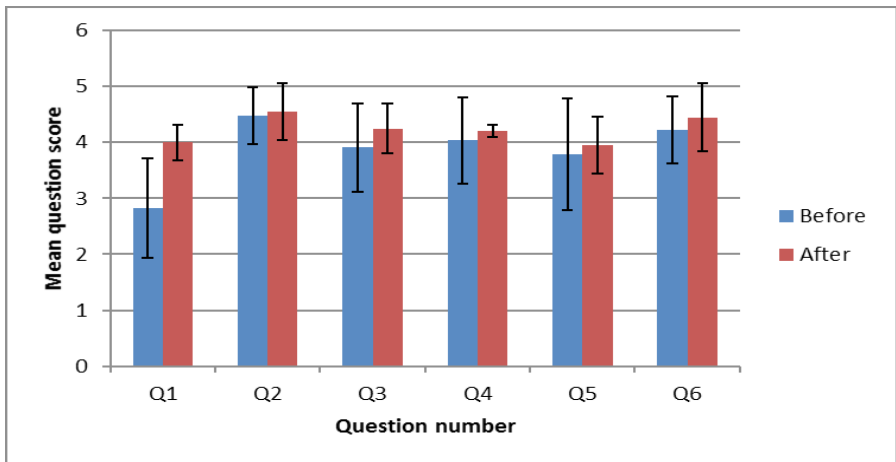


Figure 1. Mean question score for each question before and after feedback from Ophthalmologists.

integrity, leadership and ability to work under stress, similar to clinical scenarios for other allied health professionals.

The data demonstrated that students had learnt from the formal feedback from ophthalmologists, and felt better prepared for semester two sessions. In agreement with Denial (2011), formal feedback in both directions ensures clear channels of communications between the academic environment, the clinicians and the students allowing students to be actively engaged in their learning. The more positive comments from students after semester two (Stage 1) may be attributed to the personal experience and familiarity of the clinic during the second semester, akin to findings in previous clinical placement (Newton et al, 2009), and/or to the positive and encouraging feedback received from the ophthalmologists. Also, specific action points (Appendix 4) may have helped to make students feel more comfortable in the clinics and allow them to know exactly what was expected from them. Previous work has suggested that by encouraging students to take an active role in their learning and allowing them to be co-creators of the learning environment, they benefit significantly more from the experience.

Feedback from the ophthalmologists regarding the students' ability to propose tentative differential diagnoses reiterates the recent encouragement to utilise problem-based learning in Optometry (Herse and Lee, 2005). Interestingly in this study, the most commonly purchased textbook, acquired by 88% of the students, was on Ocular Disease (*ibid*). In the present study, clinical placement emphasised to the students that they should firstly consider common ocular pathology in their thought processes for diagnoses. This indicated to the authors that although didactic teaching of ocular disease in a lecture environment and 'grand rounds' was necessary to increase knowledge, the use of problem-based learning for individual cases may be beneficial to point students to recognise and name ocular abnormalities such as haemorrhages, and consider usually presenting ocular conditions for their diagnoses. Thus, the value of this research has wider reaching implications with an impact on methods of teaching in ocular disease for undergraduates. Skills in clinical reasoning such as analysing prior data, using current knowledge, reflecting on findings and formulating a management plan should be embedded within optometric education (Faucher et al., 2012). Reflective practice in assessment has been used within physiotherapy clinical placement to enhance the students' understanding of what was required for their learning outcomes (McGinley and Wilson, 2014). Mirroring the physiotherapy self-assessment ideal, Optometry students' formal assessment of their clinical placement thus included reflection on areas such as their strengths and weaknesses in detecting and naming ocular disease.

In Stage 2, positive student feedback for the ophthalmologists' teaching was highlighted to the ophthalmologists, who were asked to consider the use of didactic teaching in semester 1 and problem-based methods in semester 2. Students' lack of engagement with the survey was attributed to final year, graduation and employment. Positive students' comments on the teaching and learning experience may be attributed to the impact of this scoping study on students' preparedness for clinical placement. These findings are akin to the study by Hall et al. (2013), who found that the attitudes of the student and educator impact on the experience to be positive.

Recommendations

It is envisaged that this study provides evidence to inform future course development and clinical placements in optometry and allied healthcare professions. In order to allow the students to gain the maximum benefit from the learning experience, it is important to inform them at the beginning of semester one (before attending clinics) of any points raised in previous years to fully ensure that they are as comfortable and prepared as possible for the clinics. Ongoing communication has been highlighted as important to clinical placement (Levett-Jones et al., 2006). Within the present study, communication between ophthalmologists, students and the module co-ordinator will ensure that any concerns are dealt with quickly. Using ophthalmologists' feedback, the authors developed a 'Guide', Requirements for Ophthalmology Clinical Placement, ensuring students had clear written as well as oral information on being prepared for the learning experience. Ophthalmologists also received a copy of this document.

It is recommended that at the end of each semester, the module coordinator invites students to report on any difficulties encountered in the hospital placements to allow these to be addressed promptly, thus preventing similar issues affecting other students. In addition, it is recommended that the module coordinator also maintains close contact with those clinicians directly involved with the clinics to ensure that any concerns are dealt with efficiently, and ophthalmologists receive students' feedback on their teaching and learning experience. These ongoing collaborations also ensure the students' main learning outcome continues to be addressed.

Examples of good practice for this teaching and learning method would be the introduction of generic feedback sheets from all stakeholders. Further best practice would include the student being made aware of the employability skills that present from the clinical placement. This two-year scoping exercise has unearthed ophthalmologist and student concerns. Using a range of interventions, this scoping study has addressed these issues. Measures to enhance the clinical placement experience include the 'Guide' document, continued collaboration with the ophthalmologists and utilisation of two-way students' and ophthalmologists' feedback.

Conclusion

Maintaining open channels of communication and allowing students an active role in the learning experience facilitated a positive co-creative learning environment. Students were encouraged to self-reflect on their clinical placement experience, utilise feedback to promote knowledge and apply critical thinking to individual cases, skills necessary for life-long learning in optometry (Adams et al., 2007). Feedback from ophthalmologists challenged the educators in optometry to enhance the undergraduate experience by employing new teaching and learning approaches such as utilising problem based case scenarios. Lessons learnt from this study, relating to timely feedback, good working relations and employability skills, are transferable to clinical placements for those in other allied health professions.

Appendix 1

Questionnaire (based on Chan 2001).

Please select the most appropriate response.

1. **I feel that I was prepared for my ophthalmology clinical placement**

Strongly agree agree neither agree nor disagree disagree strongly disagree

2. **I feel that I benefited from my ophthalmology clinical placement**

Strongly agree agree neither agree nor disagree disagree strongly disagree

3. **I feel that I engaged fully with my ophthalmology clinical placement**

Strongly agree agree neither agree nor disagree disagree strongly disagree

4. **I feel that the ophthalmologists were happy for me to observe their clinical sessions**

Strongly agree agree neither agree nor disagree disagree strongly disagree

5. **I felt confident engaging with the ophthalmologists during my clinical placement**

Strongly agree agree neither agree nor disagree disagree strongly disagree

6. **I feel that my knowledge of ocular disease has improved following my clinical placement**

Strongly agree agree neither agree nor disagree disagree strongly disagree

Further Comments

Appendix 2

Questions for ophthalmologists

1. In general, how prepared were students for the clinical session?
2. How punctual and organised were students during the clinic?
3. Did the students engage appropriately with the patients?
4. Were the students enthusiastic and interested during the clinics?
5. How competent were the students in using a slit lamp/volk/other techniques appropriately to assess the patients?

Appendix 3

Questionnaire for Students Stage 2:

Please select the most appropriate response.

- ∞ **I feel that the overall experience in ophthalmology clinical placement was excellent.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmology clinical placement was interesting and informative.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmology clinical placement provided a comfortable learning environment.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmologist encouraged me to participate in proposing a differential diagnosis.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmologist enhanced my ability to view the patients' media and fundus using direct or indirect ophthalmoscopy.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmologist had a balance between explaining the condition and probing my knowledge so that I did not feel overwhelmed.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmologist was an excellent communicator in teaching Ocular and Visual Pathway disease.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the ophthalmologist enhanced my ability to refer to the NHS by their examination of optometry referral letters or by other means.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **I feel that the clinical placement with an ophthalmologist enhanced my ability to identify and name the presenting condition.**

Strongly agree agree neither agree nor disagree disagree strongly disagree

- ∞ **Have you any comments on your overall learning experience within the clinical placement?**

Appendix 4

Feedback from meeting with ophthalmologists - Feedback for students

By responding to the questions (Appendix 2) ophthalmologists gave feedback on aspects of the clinical placement. 'Action points' were suggested from the ophthalmologists for the students in order that the clinical experience is enhanced for all involved.

1. **Ophthalmologists reported that Optometry students are generally well prepared for their placement and were generally positive about the quality of the students' knowledge.**

ACTION POINTS: Students should always wear their ID badge and note that white coats are not required.

2. **The students were noted to be punctual and organised.**

ACTION POINT: None

3. **Students were rated by ophthalmologists as being polite, courteous, and good in their communication with patients.**

ACTION POINTS: When asked to call a patient from the waiting area students should raise his or her voice so that the patients can hear them clearly.

4. **Ophthalmologists stated that the students were eager to engage within the clinic.**

ACTION POINTS: Students do not need to record full details for each patient as this slows down the clinic. Students do not need to record irrelevant details e.g. if a patient is being examined for lid surgery, they do not need to know the intraocular pressure.

Hand washing – students are required to wash hands between patients without being asked. Washing your hands between patients is Trust policy and sanitising gel, provided in clinics can be used.

5. **Students were observed to be competent with equipment (slit lamp and Volk).**

ACTION POINTS: When asked for your opinion on a patient it is not expected that you will provide an exact diagnosis. Perform the examination and try to logically work through the investigation e.g. is the condition vascular, inflammatory, infectious, a tumour, age related etc. In the case where you can detect an abnormality in the anterior eye/ fundus/ disc etc. **be prepared to propose a range of differential diagnoses and consider the common eye conditions first.**

Acknowledgements

The authors would like to thank Consultant Ophthalmologists Mr Barry Cartmill, Mrs Rosie Brennan, Ms Janet Sinton, Mr Cian Collins and Mr James Church for their ongoing contribution to the undergraduate Optometry teaching.

References

Adams, AJ. (2007) The role of research, evidence and education in optometry: a perspective. *Clinical and Experimental Optometry*, 90 (4), 232-237.

Anderton, PJ. (2010) Rural clinical placements in optometry: Let's get it right! *Clinical and Experimental Optometry*, 93(5), 285-286.

Chan, DSK. (2002) Development of the clinical learning environment inventory: using the theoretical framework of learning environment studies as a tool to assess pre-registration nursing students' perceptions of the hospital as a learning environment. *Journal of Nursing Education*, 41 (2), 69-75.

Denial, A., Nehmad, L. and Appel, J. (2011) Student and Faculty Perceptions of Factors Influencing the Clinical Learning Experience. *Optometric Education*, (37), 1, 36-43.

Faucher, C., Tardif, J. and Chamberland, M. (2012) Optometrists' Clinical Reasoning made explicit: A qualitative study. *Optometry and Vision Science*, 89 (12), 1774-1784.

Gable, EM. (2001) Introducing optometry students to clinical patient care. *Optometric Education*, 26 (2) 43-50.

General Optical Council. Core Competencies and Core Curricula. <http://www.optical.org/en/Education/core-competencies--core-curricula/> [Accessed 18 September 2014].

Hall, M., McFarlane, L.A. and Mulholland, S. (2013) Positive Clinical Placements: Perspectives of students and clinical educators in Rehabilitation Medicine. *International Journal of Therapy and Rehabilitation*, 19 (10) 549-556.

Herse, P. and Lee, A. (2005) Optometry and WebCT: A student survey of the value of web-based learning environments in optometric education. *Clinical and Experimental Optometry*, 88 (1), 46-52.

Levett-Jones., T., Fahy, K., Parsons, K. and Mitchell, A. (2006) Enhancing nursing students' clinical placement experiences: A quality improvement project, *Contemporary Nurse*, 23:1, 58-71.

Mackay, M.T., Brown, R.A., Joyce-McCoach, J.T. and Smith, K.M. (2013) The development of a model of education for casual academic staff who support nursing students in practice. *Nurse Education Practice*, 14, (3), 281-285.

McGinley, C. and Wilson, I. (2014) The ESSAPP Study: Enhancing student self-assessment on Physiotherapy placement. *Perspectives on Pedagogy and Practice*, 5, 23-41.

Newton, J.M., Billett, S. and Ockerby, C.M. (2009) Journeying through clinical placements- an examination of six student placements. *Nurse Education Today*, 29, 630-634.

Owen, C., Barnard, A. and Bestic, J. (2013) Learning trajectories in longitudinal rural medical school placements. *Clinical Teaching*, 10 (6), 379-83.

Prajapati, B., Dunne, M., Bartlett, H. and Cubbidge, R. (2011). The influence of learning styles, enrollment status and gender on academic performance of optometry undergraduates. *Ophthalmic and Physiological Optics*. Jan;31(1):69-78.

Spafford, M.M., Schryer, C.F. and Creutz, S. (2009) Balancing patient care and student education: Learning to deliver bad news in an optometry teaching clinic. *Advances in Health Science Education*. 14, 233-250.

Wilson, R.J. (1990). A Clinical Curriculum Model for Training Fourth-Year Optometry Students. *Journal of Optometric Education*, 15, (3), 72-79.

Dr Julie McClelland, a qualified Optometrist and active member of the Biomedical Sciences Research Institute is involved with both undergraduate and post-graduate Optometry teaching.

Ms Moyra McClure is a qualified Optometrist with a special interest in low vision and macular disorders. Moyra teaches in undergraduate and postgraduate optometry.

Short Communication

Improving students' essays: a module for adaption and adoption.

David Carson, Ursula Donnelly and Judith Mullineux

Introduction

This short communication describes 'Improving Essays,' a new five-credit optional module available on Ulster University's Certificate in Professional and Personal Development (CPPD) framework at Level 4. This module is also available to full time undergraduates undertaking the learning as an enhancement activity.

The objectives of the module are to show students how they can improve their essays and, in the process, improve their 'critical thinking' skills. It is based upon a number of premises:

- ∞ We should help students improve what they write (i.e. the quantity and quality of ideas and supporting evidence in their essays) not just how they write it (e.g. grammar);
- ∞ Students need practical guidance on how to demonstrate the positive attributes sought in essays. We adopt Mager's (1975) advice; he condemned 'fuzzy' expressions in favour of 'performance statements.' Can you see (hear, smell, taste or touch) 'gaining insight'? No, so identify what a student would be doing when 'gaining insight,' and help them to do that by, at least, describing it;
- ∞ University students need to appreciate that knowledge is relative (Perry, 1999; Entwistle, 1981; Gibbs, 1981);
- ∞ Guidance should be of value to all students. It should show students how to obtain first-class, as well as just pass, marks.

The module was piloted with students on the BSc (Hons) Social Work course (2014-15) with a small group of eight responding. Whilst some commented that it was initially daunting, and they would have preferred to study it at the start of their course, respondents were positive, emphasised its practicality and noted that it was different from other approaches.

In order to consider the generic potential of the module, the authors then invited a senior colleague from another faculty to review the material. His feedback was extremely supportive, stating that the strength of the material was ‘the combination of advice and instruction along with opportunities for students to try exercises for themselves on key aspects of writing essays’.

Improving Essays: The core ideas

‘Improving Essays’ demonstrates how students can improve their essays, first by analysing the title, and then by improving the quantity and quality of the ideas and evidence they muster. After each piece of advice the students are provided with examples to check their understanding. For example they are advised to identify the ‘action word(s)’ in an essay title (e.g. ‘describe,’ ‘discuss’ or ‘critically evaluate’). They are then provided with a list of essay titles and asked to identify the action words in each. Each choice leads to explanatory feedback.

The examples are relatively generic; students do not require specialist disciplinary knowledge. However, we recognise that different disciplines may wish to substitute examples that are more pertinent for their students. Indeed we suggest that, over time, our examples are replaced with actual assessments which previous students were asked to tackle. This should make the exercises more realistic.

Students are also shown how to identify the ‘limit words’ and any ‘vague or ambiguous’ words in an essay title. The limit words prescribe which topics should be included in their research for the essay. Attention is specifically paid to those short words that often cause problems (e.g., ‘all,’ ‘some,’ ‘and,’ ‘or,’ ‘the’ and ‘a’). We explain that examiners often, deliberately, use ‘vague’ or ‘ambiguous’ words to allow students to excel and deserve higher grades. For example, we explain how a student who points out that an argument depends upon how a word (e.g., ‘power’) is understood will be demonstrating thought (indeed, insight).

Additional guidance is ‘wrapped’ around the focus on the essay title. Students are encouraged to recall and use the ‘3Ps+P’. Here we explain how many topics can be examined from three contrasting perspectives.

Imagine students have been asked to discuss the merits of fox hunting. Are any issues of principle, policy or practice involved? We emphasise that, especially when required to discuss a proposition, they should look for such issues on both ‘sides’ of the debate. We demonstrate that any student who takes a ‘third’ position (i.e. developing a distinctive position between perceived alternatives), is liable to be considered thoughtful and insightful, thereby deserving higher marks. The fourth ‘P’ refers to premises or assumptions. We show students how to identify and assess the assumptions of other writers or commentators (including the quantity and quality of the evidence they cite).

To maximise the value of the module it ends with two short essays. We wrote these essays, on the same title. They deserve different marks and exemplify the points – positive and negative – we make in ‘Improving Essays.’ For example the first essay, designed to be a borderline fail, is dominated by (poor) description when the title required a discussion. The second essay ‘corrects’ some of the problems of the first essay and introduces a few other problems. The students are asked both to mark and to identify positive and negative features in each essay. Having done so they are then able to compare their marks and comments with those we have prepared.

The examples, with explanations for each of the answers the students can choose, ensure formative assessment and feedback. However, for summative assessment we have devised several multiple-choice questions to test whether students have understood all the material.

‘Improving Essays’ involves many ideas and examples. Students can proceed through the content at their own pace. Perry (1999) noted how the undergraduates, who failed their first year at Harvard University, failed to appreciate the relativity of knowledge. Many students come to university expecting to be told ‘the answers.’ They can be confused when lecturers emphasise how and why different ‘findings’ need to be challenged. They perceive assessments as tests of how much correct knowledge they have gained, rather than inquiries into their abilities to handle and develop knowledge.

The module was made available to all students on the CPPD framework in January 2016. Twelve students have registered and their feedback has been positive:

‘I found this module very beneficial. I returned to University in September, prior to this it had been over 5 years since I graduated or completed an essay. This module gave me some very helpful tips on essay writing skills, some of these tips I had just forgotten and some were new to me.’

‘The skills and concepts help prepare you for essays and make you feel more organised if you use the information and skills you learn from the module.’

‘The document identifies key concepts to improve essay writing and has proved to be very useful. I was interested to know that there is no right or wrong answer to an assignment and that examiners are in fact willing to award marks for original thinking provided that it is supported with reasoned argument, evidence and references even if the expressed views are considered unorthodox.’

‘I tend to ramble and get lost in an essay question, so completing the section on key words and terms within an essay question was most useful... I now find it easier to condense and summarise information.’

‘I would recommend this document to any degree level student.’

‘I would suggest that it should be sent to all would-be students applying for a course at U.U. with the advisement that they should read it before commencing their first term.’

‘I think most 3rd level students, whether they have just finished their A’ levels or are older past graduates could really benefit from completing this module. I feel I now have the skills to write better essays or at least have an understanding of where I may tend to go wrong.’

The authors are working on further developments, for example, a section which will show students how to generate their own, and how to critically assess others', theories. The authors accept that additional guidance could be developed which maps to alternative types of assessment, for example, dissertations and essays written during examinations.

Discussion

'Improving Essays' shows students how they can demonstrate 'higher' cognitive skills (e.g. 'critical thinking' and 'imagination'). This enables, explains and validates, the 'deeper' learning which academics value, rather than the 'surface' or 'strategic' learning to which students regularly resort (Race, 2014). Thus 'Improving Essays' is not just a sequence of pieces of practical advice, but a tool for connecting to academic values and goals.

'Improving Essays' has been written for a generic audience. If you believe your students could benefit from this material, please contact Flexible and Continuing Education (flexed@ulster.ac.uk) to acquire access to this Blackboard area. Support and guidance will be available to tailor aspects of the content to your specific discipline.

References

- Entwistle, N. (1981) *Styles of learning and teaching*. Chichester: Wiley.
- Gibbs, G. (1981) *Teaching students to learn: a student-centred approach*. Milton Keynes: Open University.
- Mager, R. (1975) *Preparing instructional objectives* (2nd ed). Belmont, CA: Lake Publishing.
- Perry, W.G. (1999) *Forms of ethical and intellectual development in the college years: a scheme*. San Francisco: Jossey-Bass.
- Race, P. (2014) *Making learning happen: a guide for post-compulsory education* (3rd ed). London: Sage.

David Carson is an Associate Lecturer in the School of Sociology and Applied Social Studies, having previously worked in the Institute of Criminal Justice Studies, University of Portsmouth. He is an academic lawyer interested in practical applications of behavioural sciences to law and practice.

Ursula Donnelly is an Academic Programme Leader in the Centre for Flexible and Continuing Education. She is Course Director for the undergraduate flexible framework provision.

Judith Mullineux is a social work Lecturer at Ulster University and has been the Course Director of the PgDip Professional Development in Social Work for the last 12 years. Previously, Judith was employed in the criminal justice sector working for Save The Children Fund and the Probation Board for Northern Ireland.

Provocation Article

A provocative learning strategy to the rescue of numeracy

Tony Donegan and Gerry McAleavy

Introduction

In what appears to be Groundhog Day extrapolated to Groundhog Year, the same old story keeps reappearing year by year – pupil numeracy is deteriorating (see, for example, the British Academy Report of June 2015). Moreover, and perhaps more alarming, as pointed out in The Skills for Life Survey (2012), is the deterioration in numeracy skills between 2003 and 2011. Although the actual survey relates to England, the report on the survey states that the situation is broadly similar throughout the rest of the UK.

This concern is also reflected in the OECD (2014) commentaries based on data from the Programme for International Student Assessment (PISA). The PISA (2012) results are designed to provide data for OECD in relation to student performance across nations, and showed that the United Kingdom had fallen below the top twenty nations to a position of 26. OECD concluded that because results are based on a sample, its relative position could lie anywhere between positions 23 and 31. UK performance is similar to that of the Czech Republic, Denmark, France, Iceland, Republic of Ireland, Latvia, Luxembourg, New Zealand, Norway and Portugal.

Interestingly, as observed by the OECD, the United Kingdom has a higher GDP, spends more on education than the average in OECD countries and has a lower share of the of most socio-economically deprived groups. However, these comparative advantages do not have a clear relationship with educational outcomes. In other words, the advantages possessed by the education system are not reflected in the PISA test results. Overall, the results drew widespread criticism from the press, especially in the light of improved educational funding in the UK. The Daily Telegraph's Education Editor (Paton, 18 February 2014) was able to interpret from the report that: 'The children of factory workers and cleaners in parts of the

Far East are more than a year ahead of the offspring of British doctors and lawyers.' Probing the results further would reveal a comparable shortfall in relation to mathematics.

The PISA results might be readily dismissed by some as simply reflecting a longstanding and perhaps understandable dislike for mathematics among students. The OECD, however, surveyed (for the first time) student attitudes towards mathematics (as a subject), and found that 72 per cent of pupils in England agreed or strongly agreed that 'I work hard on my mathematics homework'. This compared with 56 per cent for the PISA average. Also, 71 per cent agreed or strongly agreed that 'I study hard for mathematics tests', compared with 52 per cent for the PISA average. On this basis, it becomes difficult to blame the students for the decline in achievement. On the contrary, it would appear that students have a positive attitude towards mathematics, but do not have the appropriate educational environment that enables them to carry this forward and achieve educational excellence.

Very basic mathematics, such as techniques in numeracy, algebra, geometry, trigonometry and statistics, are now a commonplace requirement in many university first year vocational programmes, far removed from the mainstream hard sciences, yet offering considerable employment potential to their students; see, for example, Koenig (2011). Those staff entrusted with the task of teaching these students (the majority of whom are only modestly prepared in second level mathematics), find themselves entering a new phase of a didactic lifestyle that effectively forces them to accept a primitive mathematical awareness from their students rather than what was originally acknowledged as mathematics. This perspective arises from numerous discussions with colleagues and countless attempts at trying to give students reasonable grade-assessments in the face of considerable grounded confusion brought forward from their former tuition. Today, it is widely accepted in the higher education community, and in many but not all teaching circles, that students are not being taught and are not learning essential mathematical knowledge and skills. Moreover, too many are leaving school, even with a good GCSE grade, unprepared for life and for further study of any STEM subject. Reasons for this might, for example,

come from the lowering of standards at GCSE and A-level (Kounine et al., 2008) or perhaps from a 'sound-bite' culture of low concentration - often accompanied by a desire for instant gratification, and likely to have arisen from the ever increasing custom of button-pushing that has been permeating our educational system for some considerable time. This is not implying a criticism of current trends in classroom technology; rather, it is an exposition of the downside of a technology culture whereby students of all ages are seeking to minimise their effort, usually at the expense of the art of disciplined achievement. Today, almost every aspect of technology is supported by a latent objective governed by the word 'instant': instant TV channel changing; instant car-door locking; instant banking, instant information and lots more, to the extent that our student populations have lost the self-starting initiative, particularly in mathematics, where the modern calculator is a physical analogy for the word 'instant'. The un-accustomedness of hard, prolonged work is promoting a belief in students that instant knowledge will somehow emerge from merely downloading their notes, reasoning naively that the 'use' of all learning be immediately obvious. As a consequence, the 'self-start' initiative has been lost and more critically, the whole notion of self-management has disappeared. The advent of new technologies has enveloped students probably much faster than the teaching profession has been able to keep abreast of the consequences for learning.

Learning is an active process, demanding commitment and focus. This essential point was reinforced by Vagliardo (2004, p.1), who stated, 'Mindful use of an important mathematical concept necessitates substantive knowledge, knowledge that extends well beyond the rote acquisition of standard mathematical procedures. Inversely (sic), mindless use usually involves weak or non-existent conscious awareness of purpose or meaning involved in activity'. This is frequently observed in the work of first year STEM students who will use calculators to evaluate the most trivial of calculations. Vagliardo (2004, p.1) draws attention to the view of Professor Ellen Langer (1989) that 'such mindlessness may be rooted in the development of automatic behaviour through repetition and practice'. Such behaviour occurs when a learner implements a procedure without the underpinning knowledge required to fully comprehend the purpose

of the operation. In this case a learner may be unable to respond to the unanticipated numerical request.

Towards a solution

The basic problem with student awareness would appear to stem from the lack of aggregative capability discussed in Donegan and McAleavy (2007). Some have learned a series of individual tasks to do with numeracy but lack the skill of mathematical composition; this is even more critical for those students who have previously ignored their teachers, believing that anything mathematical was either too hard to appreciate or 'not cool'. If there is some elixir to transform this serious situation and enable our students to recover the concept of mathematical appreciation, it has certainly escaped the attention of the authors. In looking particularly at aspects of the recent history of mathematics teaching dating from the 1950s, this short essay promotes the view that the demise of logarithm tables and their application from the secondary mathematics curriculum has played a significant role in both the self management loss and the poor standard of aggregative numeracy - essential for all life skills. In the application of logarithm tables the key words were 'good housekeeping'. This was fundamental to both accuracy and precision in the pursuit of an answer to a numerical task. It involved pencil and paper with an associated layout. Unfortunately, the latter appears to be a lost feature in present day examination scripts, particularly so in the case of those vocation students mentioned in the introduction. Even our colleagues who teach computer programming complain about the lack of routine 'housekeeping' skills, and a pause for thought to search the secondary curriculum for any sign of such transferable skill renders the outcome vacuous. Yet, such a skill was explicit in logarithmic calculations. Moreover, the loss in the 1970s of the computational role of the logarithm was followed by a decrease in the understanding of the properties of logarithms (Steele, 2007), so essential in the STEM subjects of today.

Mathematical composition is essentially a creative activity, which, like all acts of creativity demands that an individual makes a clean break from the automatic and operates with a heightened consciousness. For example, in the everyday environment, this means that citizens will not

automatically respond to the ever-present requests to borrow finance at seemingly low rates: instead, they will commence to reconstruct and criticise any offers with which they are presented. The increasing debt problem facing society necessitates an education process whereby citizens will gain a critical awareness of the meaning of number, just as crucially as alerting them to suspect the use of language. Unfortunately, the seemingly 'objective' appearance of numerical data, manipulated in the hands of the less scrupulous commercial operators, leaves citizens vulnerable. Equally, the daily claims being made for certain forms of medication, accompanied by the use of statistics, are being directed at citizens and professionals who may have become disempowered through lack of this creative and critical facility. It is argued (Anderson et al., 2000) that active learning is essential for students to develop an understanding of concepts. Furthermore, it is claimed that the situated learning embraced by mathematical problem-solving in 'real' situations is a powerful method of creating and, in addition, developing a capacity to address the latent complexity of calculation in business and industry.

Younger readers in general will not recall the application of logarithm tables in numerical processes and while it is not the purpose of this short essay to present any form of tutorial, such readers will gain an appreciation of the architecture of the logarithmic numerical process from Figure 1, which illustrates the steps involved in a simple multiplication task.

Here a multiplication task involving say two or more four digit numbers is converted to a simple addition task using logarithm tables. To retrieve the end result an inversion process is required using antilogarithm tables.

The whole process involves the activities of using pencil and paper supported by mental arithmetic in dealing with mean difference columns that form part of all standard (common) logarithm tables. Logarithm tables were prevalent in most second level mathematics curricula until the early 1980s and, indeed up until the late 1970s, the use of such tables was also commonplace in third level education – particularly in engineering courses. Their demise came about when

A PROVOCATIVE LEARNING STRATEGY TO THE RESCUE OF NUMERACY

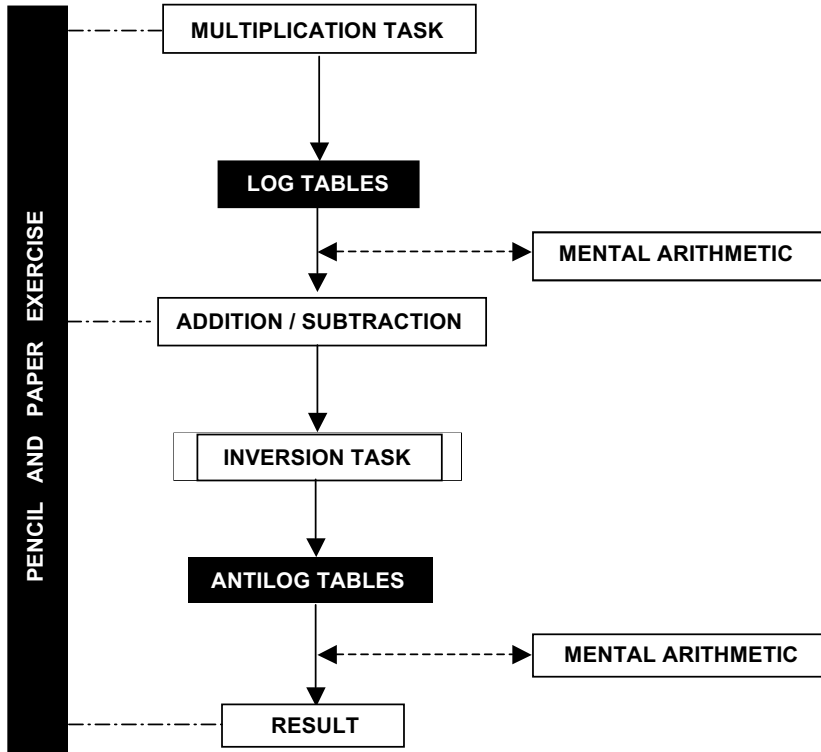


Figure 1. Architecture Associated with a Simple Multiplication Task

electronic calculators became an affordable replacement. Unfortunately, this paralleled the demise of key aspects of numeracy such as the:

- comprehension of a total numerical process – numerical awareness
- ability to read and interpret high density tables - observation
- practice of mental arithmetic - concentration
- ability to memorise numerical differences - concentration
- skill associated with a managed pencil and paper process - transcription
- awareness of a transferrable skill – theoretical challenge
- embryonic awareness of mathematical inversion – foundation building

all of which were traditionally embraced by a typical numerical task requiring the application of logarithm tables.

Although this short essay puts forward a very concise snapshot of a view that is clearly out of step with current curriculum trends, it nevertheless offers a challenge to those in control and invites research to investigate the thesis proposed herein. Readers interested in a much fuller article will find a comprehensive development of this provocative challenge in Donegan and McAleavy (2007).

References

Anderson, J.R., Reder, L.M. and Simon, H.A. (2000) Applications and Misapplications of Cognitive Psychology to Mathematics Education. Texas Educational Review. <http://act-r.psy.cmu.edu/papers/misapplied.html> (Accessed July 2015)

British Academy (June 2015) Count us in: Quantitative skills for a new generation.

Donegan, H.A. and McAleavy, G.J. (February 2007) Mathematical composition in the school curriculum – a case for the reintroduction of logarithm tables. *Mathematics Today*, Vol.43, No.1 – IMA 25-30.

Koenig, J. (June 2011) A survey of the mathematics landscape within bioscience undergraduate and postgraduate UK higher education. The Higher Education Academy, UK Centre for Bioscience.

Kounine, L., Marks, J. and Truss, E. (June 2008) The Value of Mathematics – the falling standards of mathematics: Public Examinations 1951- 2006. Reform.

Langer, E. (1989) *Mindfulness*. Reading MA: Addison-Wesley ISBN 0-201-52341-8.

OECD (December 2013, Revised April 2014) Programme for International Student Assessment PISA 2012 National Report: Achievement of 15 Year-Olds in England: Student Performance in Mathematics. Department of Education.

Paton, G. (2014) China's poorest beat our best pupils, *The Telegraph*, Monday 17 February 2014. <http://www.telegraph.co.uk/education/10645090/Chinas-poorest-beat-our-best-pupils.html> (Accessed July 2015)

Steele, C.D.C. (2007) The False Revival of the Logarithm. *MSOR Connections*. Vol. 7, (1), 17.

The 2011 Skills for Life Survey (November 2012) A Survey of Literacy, Numeracy and ICT Levels in England. Department for Business Innovation and Skills, Research Paper Number 81.

Vagliardo, (2004) Substantive knowledge and mindful use of logarithms: A conceptual analysis for mathematics educators. Concept Maps: Theory, Methodology, Technology in Proceedings of the First International Conference on Concept Mapping (Cañas, A.J.; Novak, J.D. and González, F.M., Eds.) Pamplona, Spain.

Tony Donegan, Reader Emeritus in Mathematics at Ulster University was the curriculum architect of the Ulster Polytechnic's Subsidiary Mathematics Programme presented to PE and Home Economy teachers in training during the seventies and early eighties. He also designed the mathematics curriculum for the former In-Service BEd degree, which was the primer for the subsequent postgraduate courses in Mathematical Studies. These enabled many in-service teachers to obtain formal qualifications in mathematics. In the late eighties, Tony focused his attention on decision theory, resulting in over 100 publications. As a Fellow of the Institute of Mathematics and its Applications he retains an active interest in the mathematical education of engineers. Of particular concern, arising from teaching first year engineering and construction students, is the poor standard of numeracy carried forward from their previous second level education – a key to his motivation for the provocative nature of this short paper.

Professor Gerry McAleavy is the author of around 100 publications concerned with higher educational issues. He has carried out research on many occasions which has led to policy changes in relation to education. These issues include the development of new forms of curriculum which provided understanding of the potential of the Co-Operative sector to provide new ways of developing business models and organisations, replacing the prevailing neo-liberal capitalist model. This research challenged the limited understandings which have pervaded business learning courses in universities. He also carried out research into technology and education and the provision of teacher education courses for the vocational sector, an area which had previously been neglected. In pursuit of this research he won around £1m in grants from government departments and business organisations.

Student Reflection

‘To live and learn’: personal reflections on adult learning for postgraduates through the framework of meta-cognition

David Woods and Ciarán Kearney

Introduction

‘What you get by achieving your goals is not as important as what you become by achieving your goals.’ Henry David Thoreau.

Thoreau’s words might aptly describe the journey through postgraduate study for many adult learners in higher education. This article seeks to describe our transformative experiences gained during masters level studies, which led on to our PhD research. We both graduated with Masters of Science in Applied Sport and Exercise Psychology at Ulster University. Shortly thereafter, we both took leave from employment to enrol as full-time doctoral researchers at Ulster University in October 2014. As others interested in the processes underpinning adult learning have noted, ‘we know we experienced changes. Now we seek to understand the extent to which the changes were transformative’ (Arroyo et al., 2015, p.2). Through meta-cognition and critical reflection on our learning experience, this paper seeks to provide insight into the value and potential of adult learning for all those interested in higher education.

Conceptual and Theoretical Framework

The process of ‘learning about how we learn’ is defined as meta-cognition (Veeman et al., 2006). Meta-cognition is centrally implicated in transformative learning theory (Mezirow, 1990; 2000; 2003) which builds on previous theories of critical consciousness (Freire, 1970, 2003) and emancipatory learning (Habermas, 1984). Transformative learning theory is the theoretical framework through which we will explore our own learning experiences in transition from full-time employment to full-time education. It has also been contended that the meta-cognitive critical reflection implicated in transformative learning theory is only feasible at a proximal distance for the adult learner (Mezirow, 1990). Since returning

to full-time education, we have drawn upon notes and exchanges from several meetings, in a form of narrative enquiry, to explore our own learning experiences. Narrative enquiry has been successfully employed as a method for exploring transformative learning in adult education (Arroyo et al., 2015).

Through personal narrative enquiry, we have sought to achieve a number of objectives. Firstly, to identify whether the learning we each experienced has been 'transformative'. Secondly, to reflect on the personal contextual and environmental factors that may have served as catalysts or otherwise contributed to our transformational learning. Thirdly, to consider the role of significant others in our transformative journey. Points of common significance in our learning experiences have also been included in this meta-cognitive reflection.

'Well... how'd you do?'

After several weeks of re-engaging with the demands of higher education and learning - meeting new peers and tutors, digesting and understanding multiple learning outcomes, and navigating not only the digital learning resources, but the physical warren-like network of corridors and classrooms - we both received our first graded assignments back. Mezirow (2000) posits that transformative learning is learning that transforms problematic frames of reference – sets of fixed assumptions and expectations. Assumptions and expectations from previous experience of undergraduate studies were that grades received would not have been so keenly anticipated, nor proved a catalyst for any great reflection. This time was different.

As mature students with several other demands on our time, for example work and family, when producing assignments we had to devise learning strategies to ensure no facet suffered unduly. Critical to this was careful planning and organising, right from the beginning of each semester: understanding what assessments were due when, checking for potential pressure points, and planning in sufficient time to allow for engagement with the relevant learning material and early drafts. Comparing time and effort invested in coursework with grade outcomes was important to us. Positive feedback, including constructive criticism of where further

improvements could be made was also a vital part of shaping a new frame of reference for us. The Course Director played an active role in this.

These factors played a significant part in fostering confidence and a sense of belief for both of us. The importance of confidence and belief in the adult learning is underlined by self-efficacy theory (Bandura, 1986; 1997) and was facilitated by constructive personal feedback on early coursework and grade outcomes. Each of these outcomes would ultimately impact upon our desire to become doctoral research students.

Various theories of motivation shed light on the value of goal-setting in learning and education. Self-Determination Theory (SDT) (Deci and Ryan, 1985) is one of the most influential of these theories on motivation. More recently, research on university student attainment as examined through SDT has suggested that goals which are intrinsic to the student such as personal growth, close relationships, community involvement, and physical health are more closely related to psychological satisfaction and well-being (Niemac et al., 2009). These findings have resonance with our own experiences. Perhaps at the outset, gaining positive external feedback and having extrinsic goals in relation to performance was more important; whereas, latterly, the intrinsic goal of fulfilling our own potential in life became dominant.

'I think I'll have a word with my tutor about it..'

Considering the centrality of reflective activities to transformative learning, the role of course tutors is critical in creating an environment where critical-dialectic discourse is facilitated and encouraged. Chen and Davies (2012) comment that postgraduate students are mature learners, with clear learning objectives and motivations. Perhaps with both of these in mind, the course director had invited all students to arrange a time during the initial weeks of the semester to discuss our personal aims and objectives for the course. This effectively encouraged and facilitated time for reflection on what and how we might learn from the beginning, and perhaps not surprising from a sport psychology course director, enabled goal-setting (Locke and Latham, 1984). These reflective conversations continued at certain points throughout the year, sometimes in the office environment, others whilst out for a walk or a run. Looking back, these

were integral to our transformative learning experience, facilitating self-reflection and learning; helping to shape our thinking on learning and assessment strategies and post-course pathways.

Mezirow (2003) suggests that being sensitive to others, having an open mind and learning to listen empathetically, are necessary to creating a reflective environment. Mezirow cites Goldman's (1995), model of high emotional intelligence as a favourable facilitative asset in developing the ability of adults to assess alternative beliefs, and engage fully and freely in reflective activities. This assessment would certainly resonate with our own experience of dealings with our course tutors during the MSc and subsequently. As we both experienced major life events during our studies, course tutors' reactions could have impacted positively or negatively on our transformative learning experience. Thankfully, for both of us, the impacts were only positive, and highlighted the central role course tutors can play in facilitating a positive transformative environment for their learners.

'It's not just about me.'

Group work was a theme common to many of the modules on the course, providing both support systems and reflective learning. This was an interesting and challenging interface between the competing demands and commitments of different students enrolled on one course, and the often contrasting achievement expectations of each. There was certainly a general readiness to co-operate and encourage one another, perhaps reflecting the age profile or perceived mutuality or commonality between the post-graduates enrolled on the course. These intra-group dynamics corresponded directly to the learning experience and core content of the course itself. There was also an element of self/peer assessment, both formative and/or summative. Our experience of this throughout the course was in line with research that has shown self and peer assessment can enhance learner autonomy and activate intrinsic motivation (McDonald and Boud, 2003; Williams and Kane, 2009). When considering the relevant assignments, the inclusion of self- and peer-assessment encouraged us to self-regulate our learning and develop valuable skills applicable to both our academic and external work as employees.

Niemac et al. (2009) referred to the importance of close relationships to student well-being and alongside the group work discussed previously, we also reflected on our external relationships. We both shared awareness that our families would be making sacrifices, both monetary and time, to allow us to achieve personal goals. One of the outcomes of this was a very deliberate inclusion of our families where possible in the process; from simply sharing and discussing our experiences regularly, to even proof reading draft assessments! This enabled us to convey our passion and enthusiasm for the course to those close to us, whilst simultaneously providing a much-needed support system when pressures did present themselves. Indeed, apart from the value of social support, it was an important belief for us both that completion of the course would be beneficial to our families. This symbiotic relationship between family and student life grew during the course. Developing an awareness of the self as mediated by these various social identities (Tajfel, 1978, 1979; Turner, 1982; Tajfel and Turner, 1986) and learning how to balance them, was at times an educational and challenging experience in itself.

Conclusion

The thought of embarking on a PhD evolved even as we completed the course. It emerged from a mix of the learning environment afforded to us, the formative and summative feedback, the applied elements to the learning and research projects, and the positive engagement from course director and lecturers. These elements combined to spur a belief that embarking on a PhD and conducting academic research could continue to fire a passion that brought us to the Masters in the beginning. Of course, it is a challenging new endeavour but we now understand better than before how we learn best.

Perhaps it is fitting that the very subject modules we were studying during the Masters and our iterative reflections on them encouraged the development of self-knowledge and life skills which we employed to enable us to complete the course. We would encourage mature students to reflect on their experiences, and in so doing engage in their own meta-cognition to determine how they are shaped by learning and how learning shapes them through knowledge, new experiences and relationship building. It is our view that all these experiences contribute

in a positive way to a sense of identity as a student and learner at Ulster University, which in turn promotes motivation to study further. In a quintessentially meta-cognitive way, to paraphrase Thoreau, what you get is not as important as what you can become.

References

- Arroyo, A. T., Kidd, A. R., Burns, S. M., Cruz, I. J., and Lawrence-Lamb, J. E. (2015) Increments of Transformation From Midnight to Daylight How a Professor and Four Undergraduate Students Experienced an Original Philosophy of Teaching and Learning in Two Online Courses. *Journal of Transformative Education*, 13, 341-365.
- Bandura, A. (1997) *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (1986) *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Chen, L., & Davies, V. (2012) Towards a Learner-centred Systematic Pedagogy for Enriching and Enhancing Effective Learning Experiences for MSc Students. *Perspectives on Pedagogy and Practice*, 3, 81-95.
- Deci, E.L. and Ryan, R.M. (1985) *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.
- Freire, P. (1993) *Pedagogy of the oppressed*. (Trans. Ramos, M. B.). New York, NY: Continuum. (Original work published 1970).
- Goleman, D. (1995) *Emotional intelligence*. New York: Bantam.
- Habermas, J. (1984) *The theory of communicative action: Vol.1, Reason and rationalization in society* (Trans. McCarthy,T.) Boston: Beacon Press.
- Locke, E.A. and Latham, G.P. (1984) *Goal setting, A motivational technique that works*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Mezirow, J. (1990) How critical reflection triggers transformative learning. In J. Mezirow & Associates (Eds.), *Fostering critical reflection in adulthood*. (1-20). San Francisco, CA: Jossey-Bass.
- Mezirow, J. (2000) Learning to think like an adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation* (3-33). San Francisco,CA: Jossey-Bass.

Mezirow, J. (2003) Transformative learning as discourse. *Journal of Transformative Education*, 1, 58–63.

McDonald, B. and Boud, D. (2003) The impact of self-assessment on achievement: the effects of self-assessment training on performance in external examinations, *Assessment in Education: Principles, Policy & Practice*, 10 (2), 209–200.

Niemiec, C.P., Ryan, R.R. and Deci, E.L. (2009) The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life. *Journal of Research in Personality*, 43 (13), 291–306.

Turner, J. C. (1982) Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.), *Social Identity and Intergroup Relations*. Cambridge: Cambridge University Press.

Tajfel, H. (1979) Individuals and groups in social psychology. *British Journal of Social and Clinical Psychology*, 18: 183-190.

Tajfel, H., & Turner, J. C. (1986) The social identity theory of intergroup behaviour. In Worchel, S. and Austin, W.G. (Eds.) *The psychology of intergroup relations* (7-24). Chicago: Nelson-Hall.

Tajfel, H. (1978) Social categorisation, social identity and social comparison. In Tajfel, H. (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations* (61 - 76). London: Academic Press.

Veenman, M.V.J., Van Hout-Wolters, B.H.A.M. and Afflerbach, P. (2006) ‘Metacognition and learning: conceptual and methodological considerations’. *Metacognition Learning*, 1, 3–14.

Williams, J. and Kane, D. (2009) Assessment and Feedback: Institutional Experiences of Student Feedback, 1996 to 2007. *Higher Education Quarterly*, 63 (3), 264 – 286

David Woods has a strong interest and academic background in psychology, having completed a Masters of Science in Organisational Psychology in 2003 and Applied Sport and Exercise Psychology (with Distinction) in 2012. He has previously worked as an Organisation Development consultant for 10 years and has recently embarked on a full-time funded PhD at the Ulster Sports Academy.

Ciarán Kearney has a first class honours degree in Applied Psychology (1997), Certificate in Counselling (1999) and a Masters of Science with Distinction in Applied Sport & Exercise Psychology (2014). He is an accredited coach in Athletics and Gaelic games, and specialises in performance psychology. Currently he is on a career break, doing a PhD at the Institute for Research in Social Sciences at the University of Ulster.

